

FM 7-21

DEPARTMENT OF THE ARMY FIELD MANUAL

HEADQUARTERS AND HEADQUARTERS COMPANY INFANTRY DIVISION BATTLE GROUP



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HEADQUARTERS AND HEADQUARTERS COMPANY INFANTRY DIVISION BATTLE GROUP

	Paragraph	Page
CHAPTER 1. GENERAL		
Section I. Mission and organization.....	1-3	2
II. Company headquarters.....	4, 5	2
III. Battle group headquarters section.....	6-11	4
CHAPTER 2. COMMUNICATION PLATOON		
Section I. General.....	12-33	6
II. Command posts.....	34-41	26
III. Tactical employment.....	42-50	31
CHAPTER 3. SUPPLY AND MAINTENANCE PLATOON		
Section I. Mission, organization, duties and installations.....	51-56	40
II. Combat supply operations.....	57-65	45
III. Maintenance.....	66-71	55
IV. Repair, salvage, and miscellaneous activities.....	72-78	57
CHAPTER 4. ENGINEER PLATOON		
Section I. General.....	79-83	60
II. Employment.....	84-87	62
CHAPTER 5. MEDICAL PLATOON.....	88-92	64
6. PERSONNEL SECTION.....	93, 94	68
APPENDIX REFERENCES.....		69
INDEX.....		71

* This manual supersedes FM 7-21, 8 August 1957; FM 7-25, 21 August 1950, including C 1, 22 October 1951; C 2, 25 September 1952; C 3, 15 December 1952; and C 4, 27 August 1953; and FM 7-30, 21 April 1954.

CHAPTER 1

GENERAL

Section I. MISSION AND ORGANIZATION

1. Purpose and Scope

a. This text is a guide to the training and tactical employment of the headquarters and headquarters company of the battle group. It covers the organization and operations of the company and its elements.

b. The material presented herein is applicable to nuclear warfare. Where applicable, appropriate modifying guidance for nonnuclear warfare is integrated throughout the manual.

2. Mission

The headquarters and headquarters company provides command, staff, administrative, supply and maintenance, communication, engineer, and medical support for the battle group. It may provide local security for the battle group command post.

3. Organization

The company (TOE 7-12D) consists of a company headquarters section, battle group headquarters, a battle group headquarters section, a communication platoon, a supply and maintenance platoon, an engineer platoon, a medical platoon, and a personnel section (fig. 1).

Section II. COMPANY HEADQUARTERS

4. General

The company headquarters provides necessary control and services for all men and units assigned or attached to the company. It consists of a company commander, an executive officer, a first sergeant, mess personnel, a supply sergeant, an armorer, a company clerk, and a light truck driver.

5. Duties of Personnel

a. The *company commander* is also the battle group headquarters commandant. (For his duties, see FM 7-40.)

- (1) To accomplish his mission, the company commander uses all means at his command and requests additional means whenever necessary. Without awaiting orders, he coordinates with other units and agencies.
- (2) In the battle area, he uses security and observation posts, patrols, outposts, roadblocks, interior guards, liaison, and

personal reconnaissance to maintain the security of the battle group command post. He assigns definite missions to his subordinate leaders and keeps informed of their actions in order to give assistance when needed and to insure the success of his plan. He goes where he can best control and coordinate his company's actions.

- (3) He is responsible for administration, discipline, supply, maintenance, and individual training (except for technical training) for all personnel assigned or attached to the company. Supervision of employment and technical and tactical training of all components of headquarters and headquarters company, except company headquarters personnel, rest with the battle group commander and his staff officers having primary staff responsibility for this type activity.

b. The *executive officer* is second in command of the company. He assists the company commander by helping to supervise training, administration, mess, supply, and maintenance within the company. He assumes command during the company commander's absence. In addition, he is the assistant headquarters commandant. He may serve as battle group CBR officer.

c. The *first sergeant* assists the company commander. He advises him on such matters as appointments, assignments, and disciplinary matters as they pertain to the enlisted members of the company.

d. The *company mess personnel* include the mess steward and cooks. They operate the kitchen of the battle group headquarters and headquarters company. The kitchen is operated as prescribed in TM 10-405.

e. The *supply sergeant* assists in receiving, maintaining, and turning in supplies and equipment of the company. He posts the supply records of organizational clothing and equipment, and personal clothing. He

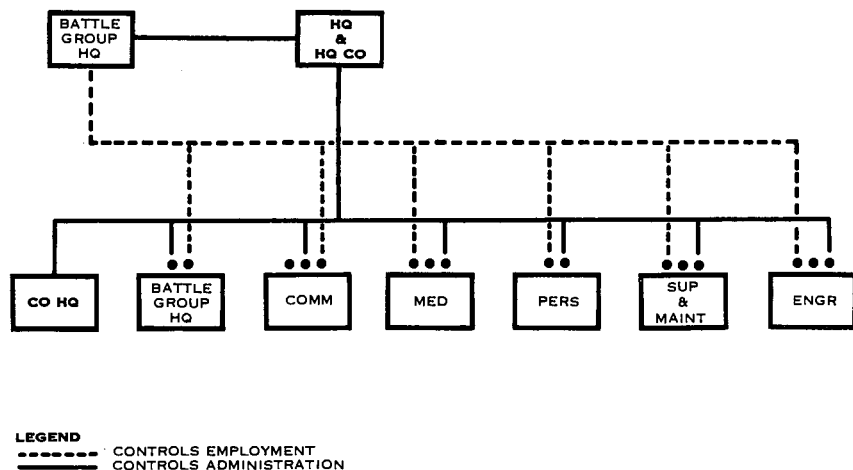


Figure 1. Headquarters and headquarters company, infantry division battle group.

supervises the company armorer. He operates the company distributing point.

f. The *armorer*, operating under the supervision of the supply sergeant, services and makes repairs on small arms of the company. He drives and maintains the $\frac{3}{4}$ -ton truck assigned to the company headquarters.

g. The *company clerk*, supervised by the first sergeant, performs necessary administrative actions required within the company.

h. The *light truck driver* drives and maintains the $\frac{1}{4}$ -ton truck assigned to the company headquarters.

Section III. BATTLE GROUP HEADQUARTERS SECTION

6. Personnel

a. The battle group headquarters section consists of five officers (the assistant S2, the assistant S3, the assistant S3 Air, and two liaison officers) and the enlisted men who work at battle group headquarters. They assist the staff officers of the battle group. The enlisted men are the intelligence and operations sergeants and their assistants, the chaplain's assistants, the information specialist, and the clerks and drivers required at battle group headquarters.

b. For duties of the officer personnel of battle group headquarters, see FM 7-40.

7. Intelligence Sergeant and Assistant

The *intelligence sergeant* assists the S2 in collecting intelligence information, posting the situation map, maintaining records, analyzing friendly positions for vulnerability to nuclear attack, and disseminating information and intelligence. He prepares overlays and intelligence reports and maintains a count of enemy casualties, prisoners of war, and equipment. The assistant intelligence sergeant assists as directed.

8. Operations Sergeant and Assistant

The *operations sergeant and his assistant* help the operations and training officer to perform his duties. They post friendly information on the situation map, help to analyze potential enemy positions for nuclear attack, and help prepare, reproduce, and distribute orders, sketches, overlays, training schedules, and reports.

9. Information Specialist

The *information specialist* is under the staff supervision of the executive officer. He prepares, collects, and disseminates information for military and civilian consumption through news media. He reviews and edits releases for propriety and good taste, and insures conformity to policies of higher headquarters.

10. Clerical Assistants

a. The *clerk-typists* provide clerical assistance to the battle group commander and his staff.

b. The *chaplain's assistants* perform the duties required to assist the chaplain in his functions. They also drive the $\frac{1}{4}$ -ton vehicles assigned for the chaplain's use.

c. The *mail delivery clerk* delivers incoming mail and collects and processes outgoing mail.

11. Light Truck Drivers

The *light truck drivers* operate the $2\frac{1}{2}$ -ton shop van and the $\frac{1}{4}$ -ton trucks assigned to the section. Eight of the drivers are also radio operators.

CHAPTER 2

COMMUNICATION PLATOON

Section I. GENERAL

12. Responsibilities

a. The battle group commander is responsible for installing, operating, and maintaining, all communication facilities of the battle group, and for battle group communication functioning as part of the division signal system. All subordinate commanders of the battle group are responsible for, and exercise tactical and technical control over, the communication systems within their commands. Tactical control insures that the systems are established and maintained properly to meet the operational requirements of the tactical situation. Technical control includes the supervision of the methods of installation, operation, maintenance, and supply of the signal equipment employed. A properly established communication system provides the commander with parallel means of communication for efficient command, control, and administration of his unit. The system provides the commander with the capability to control the actions of his units, to coordinate his supporting fires, to receive and transmit orders and information, to maintain contact with higher, lower, and adjacent units, and to coordinate logistics and personnel matters. The communication platoon is under the operational control of the battle group signal officer. For details on communication systems for the battle group, see FM 7-24.

b. Establishing and maintaining communication between units is governed by the following rules:

- (1) The higher unit is responsible for establishing and maintaining communication with the subordinate (including attached) units.
- (2) A unit supporting another is responsible for establishing and maintaining communication with the supported unit.
- (3) Lateral communications (except radio) between battle groups is established by the battle group area support platoons of the division signal battalion. Lateral radio communication among battle groups within a division is undertaken, without prior arrangement, on the division command/operation net and division intelligence/operation net. The rule for establishing lateral communication from left to right is applicable for the subordinate units of the battle group.

13. Communication Support for the Battle Group

a. The establishment of a division area communication system by the division signal battalion provides for the installation of forward signal

centers with or near the major divisional elements. These forward signal centers are operated by battle group area support platoons from the forward communication company of the division signal battalion. The forward signal center provides the connecting link between the battle group headquarters and the division area communication system.

b. Each forward signal center is organized and equipped to provide the following communication services to the battle group in its area of responsibility:

- (1) Message center (not including messenger), cryptographic, and teletypewriter service on a 24-hour basis as a supplement to the organic capabilities of the battle group.
- (2) Installation and maintenance of the incoming wire lines from the signal center to the battle group headquarters and to other divisional units in that area of signal responsibility.
- (3) Radio relay and carrier cable circuits between signal centers in the division area.
- (4) Mobile signal repair shops providing limited or emergency field signal maintenance within the battle group area, normally by effecting direct exchange of defective components or sub-assemblies on an "on-call" basis.
- (5) Establishment and operation of a forward switch during displacement.
- (6) A radio/wire integration station for connecting FM radio users in the battle group area into the division area communication system and for other service as described in paragraph 27.

c. The division signal battalion furnishes a scheduled and special division messenger service down to and connecting battle groups and other major subordinate divisional units. The division aviation company provides air messenger and carrier service.

14. Mission and Organization of Communication Platoon

a. The communication platoon installs, operates, and maintains all communication facilities within the battle group headquarters. In addition, it establishes and maintains communication to the rifle companies, combat support company headquarters, elements of the combat support company, and attached units. It provides continuous communication for the battle group headquarters by using all means of communication. It provides second echelon maintenance support for all signal equipment of the battle group.

b. The platoon is organized into a headquarters and three sections. The sections can be subdivided further into teams of varying personnel strength, depending on each team's mission, the priority of the operation, and the type of terrain over which the unit is operating.

- (1) The *platoon headquarters* consists of the platoon leader, communication chief, two senior radio mechanics, and two radio mechanics, both of the latter also being light truck drivers.

- (2) The *message center section* consists of the message center chief, communication clerks, manual teletypewriter operators, a messenger, and two motor messengers.
- (3) The *wire section* is composed of a wire foreman, four wire team chiefs, switchboard operators, senior wireman and wiremen.
- (4) The *radio and visual section* is composed of a chief radio operator, radioteletype team chiefs, radioteletype operators, intermediate speed radio operator, and radiotelephone operators.

15. Duties of Headquarters Personnel

a. The *platoon leader* commands the platoon and assists the battle group signal officer. His duties include—

- (1) Training and controlling his platoon.
- (2) Supervising the installation, operation, and maintenance of the signal equipment issued to the platoon and battle group headquarters.
- (3) Supervising the operation of communication installations.
- (4) Assisting the battle group signal officer and representing him in his absence.
- (5) Insuring that the battle group signal officer's instructions are carried out by the sections of the communication platoon.
- (6) Supervising the movement of communications installations when the command post displaces.

b. The *communication chief* is the principal enlisted assistant to the platoon leader. His duties include—

- (1) Organizing the advance echelon for displacement of the command post.
- (2) Coordinating the work between the sections of the platoon.
- (3) Supervising the selection of locations for communication installations.
- (4) Supervising ground-to-air communication.
- (5) Seeing that records are kept properly.
- (6) Insuring that assigned vehicles and equipment are maintained and dispatched correctly.
- (7) Supervising the activities of the assigned radio mechanics.
- (8) Keeping the platoon leader informed as to status of maintenance of all equipment and vehicles.

c. The *senior radio mechanics'* duties include—

- (1) Second echelon maintenance of radio sets and other signal equipment organic to the battle group.
- (2) Maintaining records of maintenance and of modifications performed on each item of signal equipment in the battle group.
- (3) Maintaining the authorized level of repair parts for signal maintenance and keeping the communication chief informed of the status of signal maintenance and the supply of authorized repair parts.

- (4) Coordinating with the chief radio operator for the prompt repair of any radio or radioteletype equipment requiring repair beyond the capabilities of organizational maintenance. This repair work may be completed by the mobile signal repair team of the supporting signal center.
- (5) Supervising the other radio mechanics.

d. The radio mechanics' duties include those duties listed in c(1) through (3) above. In addition, they perform the duties of light truck drivers for the vehicles of the headquarters.

16. Duties of Message Center Section Personnel

a. The message center chief is responsible to the communication platoon leader for the discipline, training, and operation of his section. His duties include—

- (1) Selecting the exact location for the message center and messenger station and establishing the message center facilities.
- (2) Processing, filing, servicing, and selecting the method of transmission for outgoing messages.
- (3) Supervising the operation and first echelon maintenance of message center equipment.
- (4) Checking the flow of message traffic and reporting to the originator when a message cannot be delivered within the prescribed time.
- (5) Supervising cryptographic procedures of communication clerks and manual teletypewriter operators.
- (6) Maintaining a status log on the effectiveness of each means of communication.
- (7) Signing for messages delivered by scheduled or special messengers.
- (8) Keeping the official time.
- (9) Supervising messenger communication.
- (10) Posting message center signs or guides.
- (11) Maintaining a record of the locations of command posts of units with which the battle group maintains communication, including the best routes to them.
- (12) Maintaining a supply of message center forms.
- (13) Scheduling of message center personnel to provide operations on a 24-hour basis.

b. The communication clerks' duties include—

- (1) Assisting the message center chief.
- (2) Supervising one of the message center teams during displacement of the command post.
- (3) Encrypting and decrypting messages as required.
- (4) Receiving, recording, and dispatching incoming and outgoing messages and documents.

- (5) Maintaining a code file of processed messages.
 - (6) Processing encrypted messages, to include insertion of call signs when messages are to be transmitted by electrical means.
- c. The *manual teletypewriter operator's* duties include—
- (1) Transmitting and receiving messages on teletypewriter equipment in message center.
 - (2) Correcting message errors and obtaining receipt for completed transmissions.
 - (3) Receiving and processing incoming teletypewriter transmissions.
 - (4) Encrypting and decrypting messages, employing message center cipher machine.
 - (5) Establishing and posting the station log.
 - (6) Performing first echelon maintenance on teletypewriter equipment by cleaning and making minor adjustments in the equipment and replacing minor parts as authorized for first echelon maintenance.
 - (7) Keeping the message center chief informed of the status of teletypewriter communication.
 - (8) Insuring that supplies and repair parts required for operation and first echelon maintenance are on hand or have been requested.
 - (9) Performing other communication duties as directed.
- d. *Messengers'* duties include—
- (1) Carrying oral or written messages during all conditions of visibility, terrain, weather, and enemy activity.
 - (2) Driving and performing required driver maintenance on the messenger vehicles.
 - (3) Performing other communication duties as directed.

17. Duties of Wire Section Personnel

a. The *wire foreman* is responsible to the communication platoon leader for the discipline, training, and operation of the wire section. His duties include—

- (1) Selecting the exact locations for wire installations.
- (2) Supervising the wire team chiefs in the installation, operation, and maintenance of the wire system within the command post and to all subordinate or attached units.
- (3) Selecting general routes for wire lines.
- (4) Preparing and recording line route maps, circuit diagrams and traffic diagrams.
- (5) Keeping the message center chief and the communication chief informed on the status of wire communication.
- (6) Maintaining a sufficient supply of wire and other necessary supplies to permit continuous wire operations.
- (7) Keeping records such as status of wire supply and the maintenance forms on wire equipment.

- (8) Supervising the driver maintenance of the vehicles in the section.
- (9) Allocating wiremen to the wire teams based on the current mission of each team.
- b. The *wire team chiefs'* duties include—
 - (1) Assisting the wire foreman.
 - (2) Supervising the wiremen, as organized into teams, in the correct techniques of laying and maintaining the wire lines.
 - (3) Selecting wire routes and assisting in the preparation of line route maps and circuit diagrams.
 - (4) Insuring that wire lines are policed so as to minimize their damage by traffic and enemy fire.
 - (5) Informing the wire foreman of the status of wire supply and the serviceability of wire circuits.
- c. *Wiremen's* duties include—
 - (1) Installing, testing, and maintaining wire circuits and telephones.
 - (2) Tagging, testing, and splicing field wire lines.
 - (3) Locating and correcting trouble in wire lines.
 - (4) Operating switchboards.
 - (5) Keeping the wire team chief informed of the status of wire communication and wire supply.
 - (6) Driving and performing proper driver maintenance of wire section vehicles.
 - (7) Performing other communication duties as directed.
- d. The *switchboard operators'* duties include—
 - (1) Installing, operating, and performing first echelon maintenance on switchboards.
 - (2) Preparing and maintaining traffic diagrams.
 - (3) Routing traffic and rerouting calls when normal circuits fail.
 - (4) Supervising traffic to insure satisfactory service to the user.
 - (5) Performing other communication duties as directed.

18. Duties of the Radio and Visual Section Personnel

- a. The *chief radio operator* is responsible to the platoon leader for the discipline, training, and operation of his section. His duties include—
 - (1) Selecting the exact locations for the radio, radioteletype, and visual installations, and insuring adequate dispersion of radio vehicles.
 - (2) Supervising the installation, operation, and maintenance of radio and radioteletype equipment.
 - (3) Insuring that visual signaling equipment is available and that sufficient personnel are fully trained in its use.
 - (4) Preparing operating schedules for radio and radioteletype operators.

- (5) Supervising the maintenance of communication security, to include the use of authorized codes, ciphers, and authentication systems.
 - (6) Insuring that all radio equipment is operated according to prescribed procedure and current communication orders.
 - (7) Informing the message center chief and the communication chief of the status of radio and radioteletype communication.
 - (8) Supervising the maintenance of station logs by operators of all radio nets.
 - (9) Supervising the driver maintenance on the section's vehicles.
 - (10) Informing the communication chief of the operating condition of all radio and radioteletype equipment and coordinating with the radio mechanics for repairs when needed.
 - (11) Maintaining records of the section, such as station logs, work schedules, equipment maintenance schedules, etc.
 - (12) Supervising the training of radiotelephone operators within the battle group.
 - (13) Supervising first echelon maintenance of radios and other equipment issued to the section.
- b. The *radioteletype team chiefs'* duties include—
- (1) Supervising the installation, operation, and first echelon maintenance of radio teletypewriter equipment.
 - (2) Assisting the chief radio operator in establishing operators' work schedules to provide operations on a 24-hour basis.
 - (3) Performing duties of radioteletype operator as required.
 - (4) Informing the chief radio operator of the current status of radioteletype communication.
 - (5) Coordinating with the radio mechanics for the repair of radioteletypewriter equipment.
 - (6) Informing the chief radio operator of the status of parts supply.
- c. The *radioteletype operators'* duties include—
- (1) Setting up and operating manual and radioteletype equipment.
 - (2) Transmitting messages, correcting message errors, and obtaining receipt for completed transmissions.
 - (3) Receiving and processing incoming teletypewriter messages and preparing such messages in proper format for delivery.
 - (4) Performing first echelon maintenance on radioteletypewriter equipment.
 - (5) Establishing and posting station logs.
 - (6) Driving and performing driver maintenance on assigned vehicles.
 - (7) Performing other communication duties as directed, particularly during periods when radio stations are under silence or in standby status.
- d. The *intermediate speed radio operators'* duties include—
- (1) Installing and operating radio equipment and performing first echelon maintenance on it.

- (2) Transmitting and receiving messages by use of sending key or voice transmission.
- (3) Processing incoming messages.
- (4) Maintaining station logs.
- (5) Observing communication security regulations.
- (6) Transmitting and receiving visual signals.
- (7) Driving and performing driver maintenance on radio vehicle.

e. Radiotelephone operators operate the FM voice radio sets in the radio and visual section. They are also trained in visual signaling techniques. In addition, one operator is the light truck driver for one of the vehicles of the radio section.

19. Signal Supply

a. Authorized items of signal equipment are prescribed in tables of organization and equipment. Additional equipment may be authorized by higher commanders. Initial supply and resupply is made through normal supply channels. Requests for replacement and supplies are submitted through normal supply channels. The battle group S4 consolidates these requests and requisitions the equipment and supplies. The battle group signal officer assists in preparing these requests and requisitions. Signal supplies are delivered to the battle group distributing point. The supply and maintenance platoon leader makes the distribution to the units. Unserviceable signal equipment that cannot be repaired or replaced by the forward repair sections of the division signal battalion is replaced by direct exchange for serviceable items from the reserve stock at the division signal supply and maintenance point. In an emergency, the battle group signal officer may obtain signal supplies directly from a signal supply point.

b. Repair parts consist of any parts, assemblies, or components required for maintenance of an end item. Allowances for stockage of repair parts at the various echelons are established by repair parts and special tools lists of the equipment technical manual. Quantities of repair parts authorized for first echelon maintenance are issued initially with the equipment and are authorized to be kept on hand by the operator. Repair parts for second echelon maintenance are authorized for stockage or for requisition as required, whichever is appropriate. Signal mobile repair teams will normally issue repair parts for organizational maintenance.

20. Maintenance of Signal Equipment

Each unit maintains and repairs its signal equipment within the limits of its maintenance facilities, available parts, authorized tools and test equipment, and the capabilities of assigned maintenance personnel. Maintenance performed by using personnel includes protecting the equipment from weather and rough usage, cleaning and drying, adjusting, and lubricating. When the equipment becomes inoperative, or an

inspection reveals it may fail to operate because of excessive wear of some part or parts, it is turned in to the radio mechanic for repair. Items that cannot be repaired by the mechanics are repaired by the forward repair section of the battle group area support platoon of the forward communication company. For information on division maintenance procedures, see FM 11-10.

21. Means of Signal Communication

a. Signal communication includes all means of conveying information of any kind from one person or place to another except by direct conversation and mail. In this manual, the term *signal communication* is abbreviated to *communication* except where misunderstanding might result.

b. The means of communication available to the battle group are wire, radio, messenger, visual, and sound. The composition of the means in each unit is limited by the men, equipment, and transportation provided by the TOE and the unit or higher commander. The various means have different capabilities and limitations. They are used so that they supplement each other, and entire dependence is not placed on any one means. The reliability of communication systems is greatly increased by the use of all practical means. The means used most in a given situation is the one that provides maximum reliability, flexibility, secrecy, and speed with a minimum of effort and material.

22. Wire Communication

a. Wire is a principal means of communication and includes the use of field wire, wirelaying and recovery equipment, battery-operated and sound-powered telephones, switchboards, teletypewriters, and associated equipment. Except for the transmission of messages such as maps and documents, wire communication is highly effective. It affords person-to-person conversation with break-in operation (capability of interrupting the conversation) and is more secure than radio communication. However, security is never assured when transmitting in the clear. The decision to establish wire communication depends on the need for it and the available time to install and use it. The supply of wire on hand, the expected resupply, and the future needs also are considered. Wire communication can be used in most terrain and situations. Tables of organization and equipment provide the units with the equipment to install and maintain their wire communication systems. Figure 2 shows a typical wire system installed by the battle group communication platoon.

b. Using battery-operated telephones, the maximum operating range of field wire circuits is approximately 37 kilometers. Using the sound-powered telephone TA-1/TT, the dependable range is from 6-13 kilometers. The range of wire communication varies, depending principally on the weather and the condition of the wire. (Wet weather, poor

splices, and damaged insulation reduce the range appreciably.) The operating range can be increased by using electrical repeaters or amplifying telephones. Cable is used to increase the telephone range and the available number of circuits, but is issued only to the division signal battalion and higher echelons.

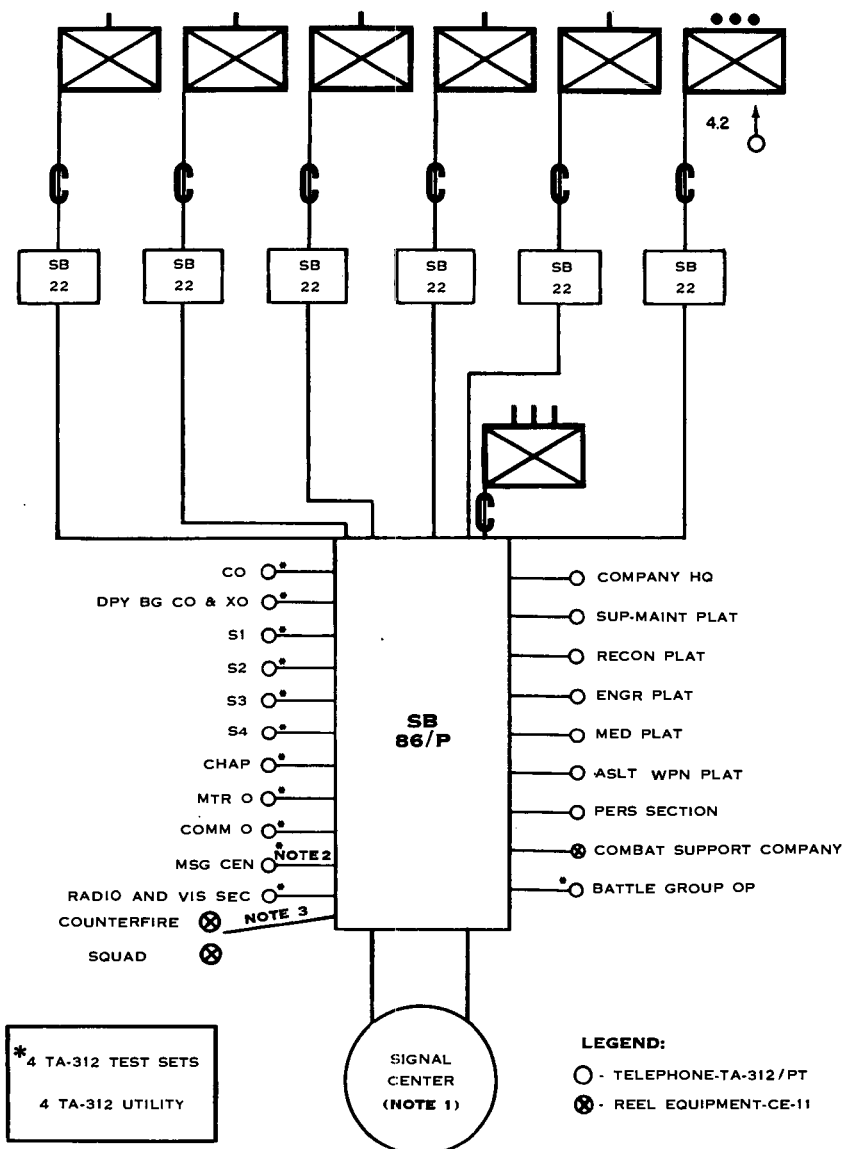
c. It takes longer to install wire communication than any other means. The time for installation depends mainly on the length of the line and the method of laying it (vehicle or manpack). Wire can be laid by men on foot at about 3 kilometers per hour and by vehicle at 5 to 8 kilometers per hour. In estimating the required time, it is necessary to consider the number of available men, their training, the terrain, routes, weather, enemy action and visibility. One man can lay a wire line by using a wire dispenser or light reel. When the terrain or the tactical situation precludes conventional methods of wire laying, Army aircraft (both fixed- and rotary-wing) can be used for this purpose (FM 1-100). Wire from dispensers can also be cast a short distance over an obstacle (such as a stream) by attaching it to a rifle grenade or rocket fired from a launcher.

d. Wire lines are laid off roads with 15 to 20 percent slack. They are placed overhead in command posts or other areas where it is impracticable to bury them or leave them lying on the ground. In crossing roads, wire may be buried, placed overhead, or run under bridges and culverts. Areas are avoided where wire is likely to be damaged by traffic or enemy fire. Part of a wire team lays the wire and the remainder of the team polices it (throws it off the road, makes road crossings, splices, etc.). The laying of line is not delayed for policing it.

e. Switchboards are used to increase the flexibility of wire systems and to reduce the number of lines needed. Party lines may be used to expand the subscriber capacity of the various switchboards in the battle group.

f. The number of telephone messages that can be transmitted simultaneously over a wire system is limited. For this reason, calls are kept brief; the telephone is reserved for occasions when there is a need for discussion, speed, and relative secrecy. During critical periods, the telephone may be restricted to designated personnel, except for emergency calls. Telephones are not used for long reports or orders when other means can be used effectively. To reduce the time the telephone is in use and to facilitate entry in the unit journal, messages are written or notes are prepared before a conversation begins.

g. Teletypewriter service is established as required. Teletypewriters provide both division and battle group headquarters with a written record of messages exchanged. Teletypewriter equipment in the battle group communication platoon increases substantially the volume of messages that can be handled by the battle group.



- NOTES:**
1. SIGNAL CENTER ESTABLISHED BY THE DIVISION SIGNAL BATTALION PROVIDES RADIO RELAY, TELETYPEWRITER, TELEPHONE AND RADIO WIRE INTEGRATION SERVICE TO THE BATTLE GROUP. NUMBER OF CIRCUITS INSTALLED FROM SIGNAL CENTER IS BASED ON AVAILABILITY AND REQUIREMENTS.
 2. ADDITIONAL LINE FOR PAGE PRINTING TELETYPEWRITER IN BATTLE GROUP MESSAGE CENTER WILL BE LAID TO SWITCHBOARD.
 3. COUNTERFIRE SQUAD TO TIE INTO BATTLE GROUP WIRE SYSTEM AT NEAREST SWITCHBOARD.
 4. ATTACHED AND SUPPORTING UNITS NOT SHOWN.
- * ORGANIC TO COMMUNICATION PLATOON.

Figure 2. Type wire system.

23. Radio Communication

a. Radio is a principal means of communication within the battle group. Radios are provided for all commanders including squad leaders. Additional radios are provided for command posts, fire control, and other uses. All sets issued within the battle group are capable of voice operation. This affords person-to-person communication between ground stations and between ground stations and aircraft. Radio communication is less vulnerable to enemy fire than wire, but it is subject to interference from static, jamming, and other radio stations. Its reliability is limited by the skill of the operators. Security requirements may restrict its use in certain operations, and the need for encoding messages slows down the delivery time. Figures 3 and 4 show radio nets in which the battle group communication platoon operates.

b. Radio equipment issued to the battle group includes portable and vehicular radio sets. Portable sets can be carried and operated by one man. Since vehicular sets are normally operated from vehicular power sources, their use is limited to situations and terrain where vehicles can be utilized. Remote control equipment can be used to permit siting of vehicular sets. Modification kits are available as auxiliary equipment to permit the use of certain vehicular set components in a dismounted role.

c. The tactical use of a radio set depends on its characteristics. To be capable of operating together, radio sets must have a common or overlapping frequency range, transmit and receive the same type of signal, be located within the operating range of the weakest set in the net, and be of the same type modulation. The operating range given in technical manuals pertaining to an individual radio set is for average conditions; the range obtained may be more or less, depending on the operator's skill, weather, terrain, interference, use of proper antennas, and location of the set. Power lines and steel structures located close to operating sites reduce operating ranges. The greatest ranges are obtained between sites affording line of sight operation, including siting by means of Army aircraft radio relay (FM 1-100).

d. Radio is the least secure means of communication. It must be assumed that interception takes place every time a transmitter is placed in operation; therefore, communication security is a constant consideration when using radios. The enemy obtains valuable intelligence information merely by knowing that friendly radios are operating, by analyzing the number of radios in operation, the volume of traffic, and by determining the locations of the sets. The use of radio may be restricted or prohibited for security reasons. Important measures for defense against enemy radio intelligence are listening silence and cryptography. Normally, messages are encrypted before being sent by radio. The decision to silence radios or to send messages in the clear is made after all the factors have been carefully considered. For example, radios are not

silenced when the need for radio communication outweighs the value of the information that the enemy might gain. Usually they are not silenced within units in contact with the enemy. A message is sent in the clear when prompt action is called for and the urgency of sending the message in the clear outweighs the value of the information to the enemy.

e. Since only one station can transmit at a time, the message-handling capacity of a radio net is limited. The time required for a message transmission to its addressee is primarily dependent on whether it is encrypted or sent in clear text and on the volume of traffic of similar or higher precedence awaiting transmission. The speed and message-handling capacity of a radio net is increased by training all operating personnel in radio procedure and net discipline, and by training the using personnel in message writing. Messages that are written before transmission can be sent more efficiently.

f. The power supply is an important factor in radio communication. Used dry batteries, when approaching the end of their service life, reduce the range of the sets and may render them inoperative at a crucial moment. An adequate supply of serviceable batteries should be maintained for dry battery-operated sets. Every effort should be made to obtain maximum service from the batteries through operator training and supervision, and by maintaining a log of hours and conditions of use for each battery pack.

g. By using certain types of remote control equipment, a radio operator may be located at a distance from the set he operates. Other remote control units connect a radio set to a switchboard, which makes the radio available to commanders and staff officers through their telephones. Remote control facilities are normally established at the battle group CP.

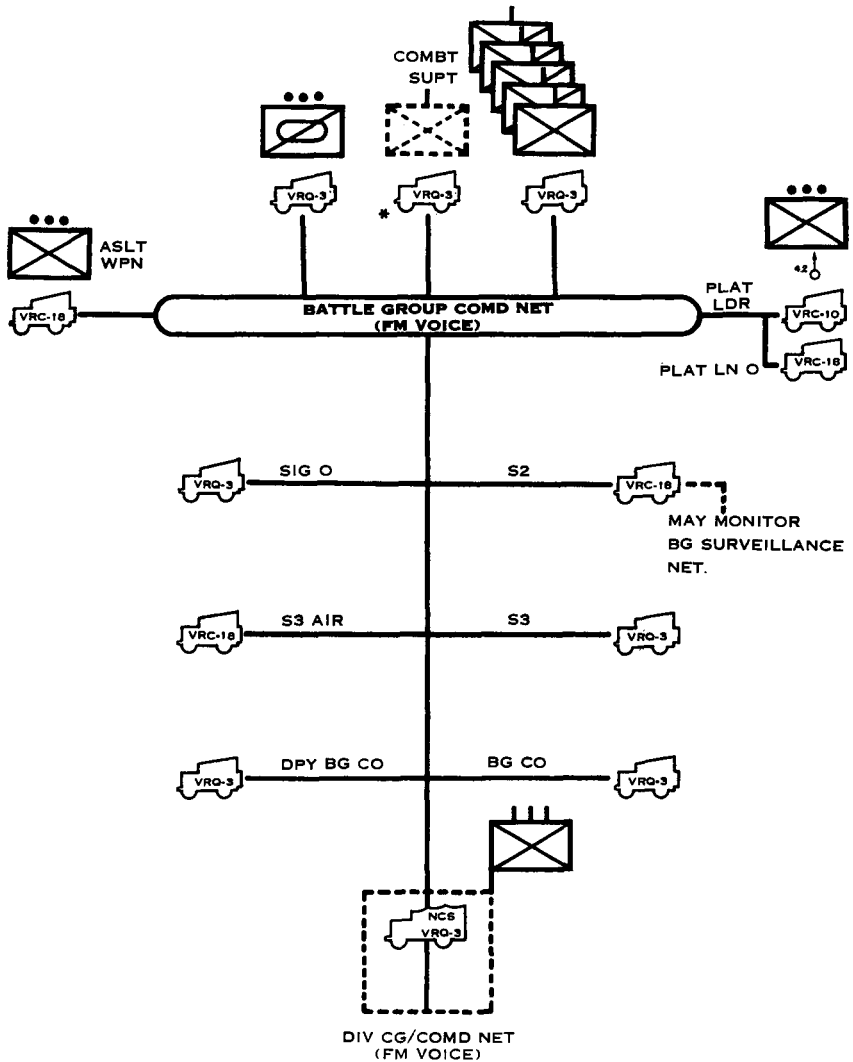
24. Messenger Communication

a. Messenger, the most secure means of communication, is flexible and reliable. But messenger service has some limitations in that it is vulnerable to enemy action in forward areas and does not permit conversation between the originator and the addressee. It is the only means available within the battle group for transmitting messages such as maps and documents. Messengers are used when security is required and when the time of delivery by messenger is less than that required for message preparation and transmission by other means. Messengers are the best means for transmitting long messages over short distances. They may travel by foot, motor vehicle, or aircraft. The efficiency of messenger service is improved by the proper selection and training of the messengers.

b. Double messengers are used when the mission involves great personal risk. They keep within sight of each other, but far enough apart to avoid simultaneous ambush or exposure to the same shell or burst of fire. Very important messages may be sent over two different routes utilizing either single or double messengers. Messengers are briefed on their route, rate of travel, and the location of the delivery points. They are

told if an answer is expected. If a messenger cannot locate his destination or becomes lost, he reports to the nearest command post and requests assistance. When practicable, a daylight reconnaissance is made of the routes that are to be traveled at night. Oral messages are kept short and simple. They are not used when time and security permit their being written. Messengers memorize oral messages.

c. When required by the urgency of the message, special messengers are used. When locations are fixed and the amount of traffic warrants a fixed schedule, a scheduled messenger service is established. Messenger relay posts may be established when messages are carried frequently



* AS REQUIRED

Figure 3. Type command net.

signals are easily misunderstood. They cannot be used during poor visibility or when line of sight locations are not available.

b. Lights for communication purposes only are not issued. Improvised signaling lights such as flashlights may be used to send prearranged messages. The meanings are given in the SOI or prescribed by the commander. Messages may be transmitted by lights, using the Morse code.

c. Pyrotechnics, including smoke, are issued in various colors and types. The meanings of certain signals are given in the SOI. Signals are included for identifying units as friendly, lifting or calling for fire, marking targets, and reporting an objective reached. Transmission and reception of pyrotechnic signals are preplanned. Pyrotechnics can be used for communication within and between ground units, between ground units and aircraft, and between ground units on shore and ships.

d. Two general types of panels are issued for communication with aircraft: marking and identification panels, which are made in bright fluorescent colors; and black and white panels, which are used on light and dark background, respectively. The marking and identification panels can be used to mark positions and to identify friendly units. The black and white panels are used to transmit brief messages or to identify a particular unit. This is done by using the combined panel system and panel recognition code, which is included in the SOI (par. 28).

e. Infrared devices are used for signaling and as landing and assembly aids. In amphibious operations, they are used as landing aids. Airborne units use them as assembly aids.

f. Aircraft maneuvers, such as zooms, rocking of wings, or alternate opening and closing of throttle, can be used for limited air to ground communication. Prearranged signals from aircraft to ground units, used primarily for emergencies or aircraft identification to radar operators, should be included in the SOI.

26. Sound Communication

Sound is a supplementary means of communication and is available to all units. Sound signals are transmitted by whistles, bugles, horns, gongs, klaxons, weapons, and other noisemaking devices. They are used chiefly to attract attention, transmit prearranged messages, and spread alarms when their use is not prohibited for security reasons. Sound codes are kept simple to prevent misunderstanding. The range and reliability are greatly reduced by battle noise. Sound signals and their meanings are prescribed in the SOI or are assigned by commanders. Three long blasts of a whistle, horn, siren, or klaxon repeated several times or three equally-spaced shots or short bursts of fire normally are used to warn of an air or mechanized attack. Rapid and continuous percussion sounds made with the standard gas alarm or improvised devices (iron rails and empty shell cases) normally are used to warn of CBR attack.

27. Radio/Wire Integration System

a. An FM-voice radio/wire integration station is operated at each division forward signal center to connect mobile FM radio stations into the division area communication system on a push-to-talk basis. This is one of the more important features of the area system.

b. This system of integration stations is used to establish communication between mobile FM radio stations and elements connected to the area communication system by telephone. It is also used in lieu of FM radio relay stations to establish communication between FM radio stations operating beyond their rated range. Typically, this system is used—

- (1) By the division commander and his staff, when traveling, to contact division elements connected to the area communication system by telephone, and for use as relay stations in the division CG/Comd Net (FM-voice).
- (2) For establishing initial telephone service from the division area communication system to the using units (including battle group headquarters) until wire links are established.
- (3) For voice communication between mobile combat elements in the division forward area and those supporting division logistics elements in the rear area who may be connected to the area communication system by wire or radio/wire integration links.
- (4) For communication between low-flying Army aircraft operating in remote portions of the division area and the airstrips (or flight control elements connected to the area communication system), in the event direct FM radio contact is impossible.

28. Signal Operation Instructions (SOI) and Standing Signal Instructions (SSI)

a. The signal operation instruction (SOI) is a type of combat order issued for the technical control and coordination of communication within a command. It includes items covering codes and ciphers, radio call signs and frequencies, telephone directory, and visual and sound signals. Current items are listed in the index to the SOI. The division SOI is prepared by the division signal officer and distributed to lower units. The battle group receives enough copies of the appropriate items of the division SOI for distribution of extracts to the companies and the heavy mortar platoon.

b. Standing signal instructions (SSI) may be issued in a separate publication, or the information can be included in the SOI. The SSI includes items of operational data not subject to frequent change and instructions for the use of the SOI. The SSI is prepared by the division signal officer and distributed to lower units. The battle group receives at least one copy of each item of the SSI.

29. Standing Operating Procedure

An SOP is a set of instructions prescribing the manner in which routine jobs are done within a particular unit in the absence of other instructions. In the battle group, the communication SOP is based on and conforms to the division SOP. The battle group signal officer prepares the signal SOP for the commander's approval. Periodic revision of the SOP is necessary for its effectiveness and conformance with the next higher unit's SOP. An SOP is particularly applicable to the communication platoon because many of its operations are the same regardless of the type of tactical operation. The platoon is not bound to its SOP to the extent that flexibility and individual initiative are destroyed.

30. Paragraph 5 of an Operation Order

a. Paragraph 5 of an operation order contains orders and instructions relative to communications and command posts. The battle group signal officer prepares it for his commander's approval. (For staff coordination, see FM 7-40.) As a minimum, paragraph 5 contains the location of the issuing unit's initial command post or the place to which messages are to be sent, and the index of the SOI in effect.

b. Paragraph 5 may be oral or written. Applicable portions of the following instructions are covered in this sequence:

- (1) A reference to the signal annex or index to the SOI in effect; restrictions, if any, on the use of any means of communication; visual and sound signals; and other information not contained elsewhere in paragraph 5, such as lateral lines to be laid.
- (2) The command post location of the unit issuing the order, the prescribed locations of the command posts of the lower units, and the axis of the command post displacement. The time of opening the command posts also may be given. The information relative to command posts and axis may be shown on an operation map or overlay.
- (3) The location and time of opening an advance message center, march control point, or other location to which messages may be sent.

31. Oral Communication Orders

After his communication plan is approved, the battle group signal officer issues oral orders to the battle group communication platoon leader. The installation of the communication system may be expedited when available section chiefs also are present. The urgency of the situation may require the signal officer to issue orders directly to the section chiefs. In this case, the communication platoon leader is informed of the situation as early as possible. His oral orders to the section chiefs may be supplemented by an operation map. Detailed orders for routine operations governed by the SOP are not included.

The platoon leader's oral orders include—

- a. Information of the enemy and friendly forces as required for the efficient operation and security of the communication system.
- b. The platoon's mission.
- c. Instructions to each section chief, which may include any or all of the following:

- (1) Instructions to the message center chief concerning the location of the message center and messenger station; schedules and routes; uses of codes and ciphers; and command post location of lower, attached, supporting, adjacent, and next higher headquarters, and routes to them.
- (2) Instructions to the chief radio operator concerning the location of radio installations; operation instructions and schedules; use of voice radios; location of panel display, message-drop and message pickup grounds; and restrictions, if any, on using radio and visual means.
- (3) Instructions to the wire foreman and team chiefs concerning the switchboard location; number and location of local telephones (including long locals such as the line to the observation post); number and routes of trunklines; and other applicable special instructions.

- d. Administrative details such as location of the motor park, bivouac area, and division signal supply point.

32. Communication Security

a. *Communication security* is the protection resulting from all measures designed to prevent or delay unauthorized persons from gaining information of military value from communication sources. It includes physical, cryptographic, and transmission security. Officers and enlisted men who personally transmit radio messages are concerned particularly with security. The commander must insure that communication security orders and regulations are understood and observed. He establishes security by stating general principles in the unit SOP, by announcing before an operation the extent to which security is to be practiced in that operation, and by making security decisions during an operation. When prompt action is called for, he considers the time in which the enemy can act on the information contained in a clear-text message. He then decides whether the urgency of sending a message in the clear outweighs its value to the enemy. Messages that compromise plans, operations, or cryptosystems of other units are not transmitted in the clear. Messages to be transmitted in the clear by radio operators (including those sent through message center) are marked "send in clear" over the signature of the commander or his authorized representative. They are signed by the commander or his authorized representative.

b. *Physical security* protects the signal equipment and classified documents (including plain-language copies of messages and carbons)

from capture, damage, or loss. Complete items such as SOI codes and ciphers are limited in distribution. Complete items of the SOI are not taken forward of the forward area battle group command posts. Before a command post is vacated, it is inspected for messages, carbons, cipher tapes, and copies of maps or orders. Wire lines are patrolled to prevent the enemy from tapping them. When SOI, codes, or cryptographic equipment is lost or captured, the facts are reported promptly to the next higher commander. Instructions are issued on how to destroy equipment and classified documents to prevent their capture or use by the enemy.

c. *Cryptographic security* means technically sound cryptosystems and strict observance of instructions to prevent or delay the enemy from reading message. Time spent in encrypting gives a high return in security. The use of cryptosystems other than those authorized by the unit SOI, however, compromises security. Most unauthorized systems are susceptible to easy solution and give the user a false sense of security. Security hazards may be minimized by being brief and avoiding stereotyped phraseology (particularly at the beginning and end of a message). Identical messages are not sent in both clear and encrypted text. When using clear text, landmarks that can be associated with encrypted map locations are avoided as references. When messages cannot be sent in the clear, individuals and small units that do not have cipher devices use prearranged message and operations codes. When using security codes, clear and encrypted text (except coded map locations) are not mixed in the same message. When authorized, a reasonable degree of security can be obtained by using codes prepared locally, according to the SOI, and frequently changed.

d. *Transmission security* limits the enemy's ability to intercept transmissions and prevents him from using our communication systems for deception. A message is transmitted by the most secure means available, consistent with its precedence. Radio is particularly susceptible to interception, position-finding, traffic analysis, and deception. The radio operators are told about the dangers of giving information to the enemy through faulty operating procedures or techniques. Operators and men preparing radio messages must be aware of the enemy's ability to gain information from radio traffic. Those transmitting clear-text messages by voice radio use prescribed radiotelephone procedure and preplan the content and wording of each transmission. They use prescribed authentication systems and eliminate unnecessary transmissions. A high standard of net discipline among operators is essential in maintaining communication security. Training in the correct procedure is continuous. For additional information on communication security, see AR 380-5 and ACP 122.

33. Training

a. Communication training is conducted in these phases: individual, unit, and combined. During basic military training and advanced

individual training, communication personnel are trained in basic military subjects. They also receive some specialist training in their primary duties. Each man is taught how to fight as an infantryman. Specialist training is conducted best in division and lower unit schools (particularly applicable to radio operators). Certain specialists, such as battle group signal officers, communication chiefs, and radio mechanics, should receive their training at service schools.

b. During basic and advanced unit training, specialist training is completed and communication personnel are trained in the communication technique for all types of tactical operations. Before participating in exercises involving entire units, command post exercises are conducted with commanders and staffs present. These develop skill in procedure for the installation, operation, and movement of command posts. The personnel are trained to install, operate, and maintain communication systems in fast-moving situations, during all conditions of weather, visibility, and terrain.

c. In the field exercise and maneuver phase (combined arms training), tactics and techniques of communication units working with higher, supporting, supported attached, and adjacent units are perfected. This phase includes field exercises and maneuvers. As specialists become proficient in their primary duties, they are rotated to learn the duties of other selected key members of their unit.

Section II. COMMAND POSTS

34. General

a. The battle group CP is the battle group field headquarters. When the headquarters is divided into a forward and a rear echelon, the forward echelon is the command post. The command post group consists of the personnel and equipment needed to provide immediate assistance to the battle group commander. Although the commander frequently goes forward to observe and direct the action, he remains in communication with the command post. Contact with the commander can be secured at or through the CP, where all communication facilities are centered. Administrative activities not required at the command post are conducted at the rear echelon.

b. The division or battle group commander designates the location of the battle group command post. Higher, lower, and supporting units are kept informed of its location.

35. Selection of Locations

If the division commander does not designate the general location of the battle group command post, the battle group signal officer and the S1 make the recommendations to the S3. The S3 makes the final recommendation to the battle group commander. When selecting the location, the S1 and the signal officer consider the following factors:

a. Type of Tactical Operation. During movement to contact, the command post moves by bounds along a designated route, or it is located at a designated place in the formation. In offensive operations, it is located well forward to avoid early displacement. In defensive operations, it is located so that local enemy penetrations will not cause displacement. In other types of tactical operations, it is located at the place from which the commander can control his battle group most effectively.

b. Requirement for an Alternate Command Post. The requirement for it, facilities available to establish it, and general location of the battle group alternate command post should be considered when selecting the location of the CP. The same considerations apply when selecting the general area for the alternate command post as are considered when selecting the primary area. The alternate must be so located in relation to the primary command post that it will not be affected by an enemy nuclear strike in the primary command post area.

c. Signal Communication Requirement. Command posts are located to facilitate signal communication. An improperly located CP may delay the establishment of communication at a critical time or make maintenance of effective communication impossible. The principal considerations for the command post location with respect to signal communication include—

- (1) Effect of distance and terrain (on wire and messenger communication).
- (2) Necessity for wire routes to the front and rear (permitting the prompt establishment of wire communication).
- (3) Effect of power lines, electrical stations, hill masses, dense woods, and distance (on radio communication).
- (4) Proximity to suitable terrain for airstrip. Minimum requirement is proximity to open terrain for use of airdrop and pickup of messages and ground-to-air panel display.
- (5) Necessity for line of sight locations visible only to friendly troops (for use of visual communication).

d. Routes of Communication and Traffic Conditions. Since all communication facilities center at the command post, roads into and out of it and the traffic to be expected on these roads influence its location. Messengers, wire teams, command vehicles, and other vehicles constantly use the communication routes from the command post forward to lower units and back to higher units. The absence of suitable communication routes causes delays and makes tactical control difficult. When practicable, messengers and wire teams use roads.

e. Space. The various installations within the CP are given enough space to operate efficiently and avoid unnecessary casualties from enemy action. The minimum distance between installations outside of structures is 100 meters. Space is provided for other CPs that may be located in the vicinity and for liaison and agent personnel from other units.

f. Cover, Concealment, and Security. Consideration is given to the availability of natural concealment, cover, and defensive positions. The CP should not be located near a landmark or terrain feature likely to attract hostile fire or air attack. A location that cannot be seen from main roads is preferable. For security reasons, the CP may be located with a lower unit. It is dug in or located below the surface of the ground to reduce the effects of nuclear weapons. Consideration must be given to its location with respect to other installations or units to avoid creating a nuclear target.

36. Designation, Marking, and Time of Opening

The command post may be designated near a landmark that is easily identified on the map and on the ground, but which is not likely to be an enemy target. The exact site is located in the general area of the designated point. When shown on a map, the flagstaff base is placed at the designated location. The route leading from the designated location to the exact CP location is marked by signs or guides. For security reasons, only guides may be used. When signs are used, they are large enough to be read from a rapidly moving vehicle. When the CP is in a town, the main roads leading into the town are marked, beginning at the entrance to the town. The headquarters commandant is responsible for placing signs and guides. The message center places the signs or guides to direct incoming messengers to the message center. The CP is opened at the designated time, or when no time is given, as soon as practicable after the order is issued.

37. Interior Arrangement

a. The battle group adjutant (S1) is responsible for the interior arrangements of the command post. He selects the locations for all activities except the communication installations. The battle group signal officer selects the locations for these. During training, an SOP for the CP arrangement is given in schematic form to show the location of command post installations and activities in their relationship to each other. This SOP is used as a guide; modifications are made as required by the terrain and the tactical situation.

b. The commander and his staff are conveniently situated to permit efficient operations. The characteristics of the means of communication are considered in locating communication installations to serve the commander and staff in the best possible manner.

c. The message center is at the natural entrance to the command post so that incoming messengers may find it easily and outgoing motor messengers can be dispatched quickly. A messenger station is nearby. Motor vehicles used by messengers are located conveniently with respect to the message center and messenger station.

d. The radio station is located at a site that provides the maximum efficiency in transmission and reception. Other considerations include:

location of the panel display, message-drop and message pickup grounds; mutual interference between radio sets; and the possibility of radios being located by enemy direction-finding equipment. Sets used with remote control equipment are located without regard to the user. Motor vehicles with radio sets installed usually are parked at the radio station.

e. The *panel display, message-drop and message pickup grounds* should coincide, when practicable, and be near the radio station whose personnel are used for their operation. Level, open ground, free from high weeds and brush and removed from bodies of water, is preferable. The panel display ground should be situated so that observers can read displays at side angles from the vertical. Shadows are avoided, where possible. Unobstructed approaches to the message pickup ground are required. This field also serves as an emergency landing strip for Army aircraft. See FM 1-100 and TM 5-251 for basic considerations in selection of air fields or landing sites.

f. The *switchboard* is installed in a location convenient to incoming wire circuits and as free from noise and interference as possible.

g. *Telephones* are installed as required, according to the priority established in the battle group SOP.

h. The *motor park* is established in a covered location away from the CP and near adequate road nets with good entrances and exits. It is located so that its detection from the air will not disclose the location of the command post.

38. Operation and Conduct of Personnel

a. The CP is organized for 24-hour operation. During less active periods, the men take every opportunity to rest and prepare for more active periods. The men on duty are rotated so that they have an opportunity to rest. Communication personnel are continuously prepared to establish new channels of communication and maintain existing channels. Wire lines are particularly vulnerable to enemy fire and are repaired promptly when damaged. Sufficient means of communication must be available at all times to transmit and receive messages rapidly and efficiently.

b. All incoming messengers deliver their messages to the message center; the messages are signed for and delivered to the sergeant major by message center personnel. The sergeant major supervises the circulation of all incoming messages.

c. Outgoing written messages are usually sent through message center. The message center records include a message log (a reading of all outgoing messages and messages coming in by messenger), a means chart (a record of the electrical means of communication available), a live file (duplicates or skeleton copies of outgoing messages), and a crypto file (a clear text copy of all outgoing encrypted messages and the encrypted copy of all incoming encrypted messages.) A dead file is turned over daily to the adjutant for disposition. Officers who send or receive

messages that do not pass through the message center must see that a synopsis of each message is made available without delay for entry in the unit journal.

d. Vehicular traffic in and out of the command post is controlled. Visitors are stopped at a dismount point and directed to walk to their destination. Their vehicles are sent to the parking area. The communication vehicles required in the CP travel at reduced speed and use existing roads and trails. The troops wear the prescribed uniform and carry the required individual equipment. They work as quietly as possible and avoid unnecessary grouping. Individual and organizational equipment not in use is stored neatly or left packed so that the CP can move quickly. Sanitation and police are rigidly enforced. Latrines are set up with sufficient capacity to accommodate all personnel. Trash is buried; a fire might disclose the location of the CP.

39. Local Security and Defense

The headquarters commandant is responsible for the command post security. Under the supervision of the S3, he prepares plans for the defense of the CP, using available elements of headquarters and headquarters company. Personnel from the communication, weapons, and engineer platoons or battle group reserve may be used for local security as directed by the battle group commander. All commander post personnel are prepared and trained to assist in the defense. Hasty entrenchments are dug to provide individual protection and protection for the CP. Communication installations are dug in to protect the equipment and permit continuous operation. The maintenance of secrecy as to the command post location is important. The use of unshielded lights is prohibited. Maximum use must be made of camouflage.

40. Axis of Signal Communication

The axis of command post displacement is the route along which future CPs are established. When displacement is anticipated, the division or battle group commander designates the axis of displacement. The axis is designated by successive probable command post locations in the direction of movement or on a specific route along which the CP will move. The axis extends to the final objective or far enough to provide a guide for displacement until further orders can be issued.

41. Displacement

a. Displacement is coordinated to avoid disrupting communication and losing control. Before a location is changed, the minimum communication facilities required at the new CP are established. This requires that the signal officer be notified well in advance of the estimated time of displacement. Other units concerned are notified of the contemplated change. When the new location is not already prescribed, the S3 confers

with the battle group signal officer and submits recommendations for the new location to the commander. The S2 must be consulted with respect to the vulnerability from nuclear weapons attack of any location considered. A quartering party, including the S1, the battle group signal officer, guides, and security and communication personnel, goes to the new location. The exact site is selected and the locations for the different installations are designated. Communication is established and guides and security personnel are posted.

b. When the site is ready for occupancy, the commander is notified. The command group moves to the new location according to his instructions. Enough personnel, including communication personnel, remain at the old command post to operate and close it. On the commander's orders, the old command post is closed and the new command post opened at the same time. All communication personnel go to the new site, except a guide who remains to direct messengers to the new location.

c. The battle group and the forward signal center supporting it coordinate closely to insure continuous communication during the displacement.

Section III. TACTICAL EMPLOYMENT

42. Movement to Contact

a. *Communication in route column* is limited to that for transmitting orders.

b. *During movement in tactical column*, communication is provided between the battle group march CP and the division commander, adjacent columns, reconnaissance and security elements, lower unit command posts within the column, and supply trains. Communication also is maintained within units in the column. The principal means are radio and messenger (foot, motor, and air). These are supplemented by visual and sound signals. When secrecy is necessary, the radios are restricted or silenced. Orders for the march cover the axis of the command post displacement, use of the means of communication, and command post locations. When information required in the order is covered in the unit SOP, the order merely refers to appropriate parts of the SOP.

- (1) *Radio* is an effective means for controlling units during a march. Command nets may be organized, to include platoons. Some secrecy of movement is achieved by using codes and by reporting positions in reference to phase lines and march objectives. Radio nets are organized so that the operating ranges are not exceeded. All commanders and operators familiarize themselves with the details of the net organization and codes. The radio ranges are reduced during movement and when line of sight locations cannot be selected. Army aircraft radios and radios with liaison officers are helpful in establishing radio com-

munication with adjacent columns and between units in extended columns.

- (2) *Messengers* are used by all units during a march. Foot, motor, and air messengers are used from front to rear and between adjacent columns. Messages can be exchanged between moving vehicles. Army aircraft messengers facilitate communication between adjacent columns, to the distant command posts of higher commanders, and within extended columns. Before the march begins, messengers are informed of the route, the information to be delivered, the locations of CPs, and special vehicular markings.
- (3) *Pyrotechnics* are used for prearranged messages. A common use is for reporting when units reach march objectives or cross phase lines. They may also be used as messages between ground units and aircraft, and as antiaircraft or antitank warnings. When prearranged pyrotechnic messages are to be used, lookouts are assigned areas of responsibility in which to watch for them.
- (4) *Panels* are kept ready to identify friendly columns, vehicles, command posts, and message-drop and pickup fields to friendly aircraft. Panel teams may leave the column temporarily to communicate with aircraft.
- (5) *Wire* normally is not laid during a march. However, commercial wire systems and existing field wire circuits may be used after coordination with and approval of higher headquarters.
- (6) *Command posts* are located to facilitate column control. Their locations in the column are prescribed and announced in orders. During motor marches, the battle group command post normally travels at or near the head of the battle group main body. Command posts of other units in the main body are located at or near the heads of their respective units. During foot marches, command posts may be motorized and move by bounds between units. A motorized command post consists only of essential command and communication vehicles. Communication vehicles include those used for messengers, panel teams, and radios. A few wire vehicles required during or immediately after the march are also included. Communication personnel not required during the march travel in the headquarters company serial.

c. *In the approach march*, the means of communication used in tactical column are continued. Radio and messenger are the principal means. Army aircraft, when appropriate, and visual and sound communication are used to supplement these. Communication security is continued. Prearranged message and operations codes are used extensively except when clear-text messages can be transmitted without violating security.

As units assume extended formations or move cross country, messenger communication becomes more difficult. Cross-country marches reduce the speed of the messengers and make march command posts more difficult to locate. Instructions to messengers are more explicit. The use of wire in the approach march depends on the rate of advance, the distance to be covered, future plans, the speed at which wire can be laid, and the supply of wire. Premature establishment of the wire system results in the loss of wire and overextension of circuits. It delays the installation of communication for the next operation. March command posts are kept well forward, convenient to all command elements, and follow the best available communication routes. Communication personnel keep abreast of the situation, supervise the operation of the communication system, and plan continuously for future operations.

d. During halts, a limited communication system is established. During temporary halts, communication is the same as during the march. During overnight halts and other prolonged halts, messengers are used extensively. The use of radio may be limited by security restrictions. Wire is installed, but is limited by the available wire supply and the duration of the halt. It is desirable for the battle group to have wire communication to lower units during overnight halts.

e. In the assembly area, temporary command posts and a limited communication system are established. The same means of communication are used as in prolonged halts during the march. The signal officer is given timely information of the commander's plan for the next operation. He must have time to reconnoiter and submit recommendations for a communication system and a command post location for the next operation. Installing the communication system is easier when the first location for the battle group CP is in the assembly area. When the CP is to be forward of the assembly area, the communication platoon's advance echelon moves to the command post location early and installs the communication system before the next operation.

43. The Offense

a. The extent of communication required by the battle group during the offense depends on its assigned mission. The battle group signal officer, in close coordination with the battle group commander and staff insures that provisions for communication are complete, including the communication required between maneuver and fire support units and between all combat and service elements involved.

b. As soon as the battle group signal officer is informed of the attack plan, he makes a map reconnaissance and a tentative plan. When possible, he discusses this plan with the S3 and then makes a ground reconnaissance, accompanied by wire personnel and other platoon members. He submits his recommendations to the S3 for paragraph 5 of the operation order.

c. Following the issuance of the attack order, the battle group signal officer completes the coordination of his plans with the S1, S2, and S3, the heavy mortar platoon, and supporting artillery. He then proceeds to the designated command post area with the S1 to determine its exact location and interior arrangement. As soon as possible after the location has been approved, he contacts the communication platoon leader and has the bulk of the communication platoon sent forward. He then contacts the platoon leader of the supporting battle group area support platoon and notifies him of the exact location of the battle group command post. The battle group signal officer, platoon leader, and section chiefs may precede the platoon to the designated CP location to receive orders and to reconnoiter before the platoon arrives. The remainder of the platoon continues to provide communication in the assembly area until the command post for the attack is occupied.

d. Radio in a daylight attack is a principal means of communication. Once the leading companies cross the LD, wire lines become difficult to maintain. As a minimum, wire circuits between the battle group CP and heavy mortar platoon and battle group OP are maintained. The trunk-line between the battle group switchboard and the area support platoon are installed and maintained by the installation section of the support platoon. This service integrates the battle group into the division area communication system via wire. Special emphasis is placed on installing and maintaining the battle group OP line. The most efficient wire team should be selected to install the OP line. Normally, lateral communication is effected through the facilities of the area support platoon.

e. Radio is used as much as possible, but for secrecy and surprise its use may be restricted until a prescribed time. Radio listening silence is not carried to the point of making it a handicap rather than a protection. When it is probable that the enemy knows the location or anticipates the movements of friendly units, or after contact is made, little can be gained by imposing radio listening silence.

(1) Radio nets operated within the battle group are flexible and may be altered as required by the situation. The number of available frequencies varies. The battle group communicates with division in six different radio nets:

- (a) One amplitude modulated radioteletypewriter (AM-RATT) operating in the division intelligence/operation net.
- (b) One amplitude modulated radioteletypewriter (AM-RATT) operating in the division command/operation net.
- (c) One amplitude modulated (AM-voice-CW) radio operating in the division air request net.
- (d) One frequency modulated voice (FM voice) operating in the division CG/command net.
- (e) One amplitude modulated radioteletypewriter (AM-RATT) operating in the division administrative/logistical net. The battle group enters this net only when necessary for traffic

- of this nature, and must utilize the AN/GRC-46 radio normally operating in the division intelligence/operation net.
- (f) One amplitude modulated receiver in the division warning/broadcast net. Since this set is a receiver only, should the battle group desire to transmit in this net, the AN/GRC-19 radio must be utilized. This results in the radio temporarily leaving the division air request net in which it normally operates.
 - (2) The battle group command net includes the rifle companies, combat support company, heavy mortar platoon, reconnaissance platoon, assault weapon platoon, signal officer, S2, S3, S3 Air, deputy battle group commander, battle group commander, and the net control station (fig. 3). The battle group also establishes an administrative net which includes the rifle companies, combat support company, supply and maintenance platoon, engineer platoon, heavy mortar platoon, S4, battle group surgeon, headquarters company, and the net control station (fig. 4).
 - (3) Radio sets are available for communication with the battle group observation post and for direct communication with Army aircraft, supporting artillery, engineers and reconnaissance units.
 - (4) When the battle group commander leaves the command post, he maintains communication in the division CG/command net and the battle group command net with his radio set.

44. Night Attack

- a. Wire is the best means of communication during a night attack. It is laid to the attack echelon, to fire support units, and to the reserves. Wire communication is maintained with the assaulting companies throughout the attack and during the consolidation and reorganization.
- b. When the attack is conducted with the aid of continuous fire support, radios may be used after the attack is discovered. When an attack is conducted by stealth, radio operators listen on assigned radio frequencies but do not transmit until told to do so by the net control station.

45. Defense

The communication system for a defense is more elaborate than for an attack. Two or more lines are laid over different routes between the battle group command post and subordinate units. Lateral wire communication between battle groups is obtained through the forward signal centers. Wire communication is established to the battle group command post by the forward signal center. Simplex and phantom circuits are used to provide additional channels of wire communication. Scheduled messenger service is established to relieve the traffic from the wire system. For security, radio communication usually is restricted until the enemy makes contact with units in the battle positions. When wire

communication is available, radio transmitters are not used; when wire communication is interrupted, radio nets are opened and ready for use. The communication system is constantly improved to assure uninterrupted operation.

46. Withdrawals

a. Communication during a *withdrawal from action* is characterized by detailed planning in advance and close coordination during the withdrawal. Existing communication channels are maintained as long as available equipment and restrictions imposed by higher commanders permit.

b. When the battle group is forced to execute a *daylight withdrawal*, the communication platoon establishes, operates, and maintains the communication facilities. A daylight withdrawal requires as much detail planning and preparation as a night withdrawal.

c. A *night withdrawal* is characterized by deliberate planning, detailed reconnaissance, and extensive supervision. The communication plan is carefully prepared to support the tactical plan. During the movement to the rear, communication is necessary in the old position and within the new battle position or area to which the battle group is moving.

- (1) Reconnaissance of the withdrawal routes determines what existing wire circuits can be used. Communication is provided to assembly areas, march-control points, and between the forward and rear positions. An early reconnaissance of the rear position is necessary for timely completion of the communication system there. Limits on the size of reconnaissance parties usually permit only the communication platoon wire section personnel to reconnoiter the new position. This reconnaissance can be accomplished with either ground transportation or with Army aircraft.
- (2) Existing communication facilities are maintained in the old position by the detachments left in contact. Command posts close on order, or when taken over by the detachments left in contact. The communication chief or his representative remains with the detachments left in contact. The minimum communication personnel remain in the old position to operate the communication system for the detachments left in contact. If at all possible, unused wire lines are recovered or sections removed to prevent their use by the enemy. Deceptive measures include using dummy radio stations and simulating normal radio activity in the old position.
- (3) Messengers and available wire circuits are the principal means of communication during a withdrawal. The staff and liaison officers help the commander control the movement. Communication can be provided at march-control points by splicing telephones into existing wire circuits. Listening silence is

ordered and the radio operators continue to monitor on assigned frequencies. If the withdrawal is discovered and more control is needed, the higher commander may direct that radios be used.

- (4) The majority of the communication platoon moves to the rear as early as practicable to establish communication facilities at the new position before the main body arrives. When the defense is to be resumed on the new position, a complete defense wire system is installed as early as possible. The new position battle group switchboard is connected into the division forward signal center by running a new cable or by using the existing cable and tying in at the nearest junction, whichever is quicker. The radios continue to listen on assigned frequencies, but remain silent until the battle group commander deems operation necessary. When the withdrawal is to be followed by some other type of operation, minimum essential communication is established within the battle group assembly area and to the outpost until plans are made for the next operation. Reconnaissance and plans for communication for the next operation are completed as soon as possible.

47. Delaying Action

In a delaying action, emphasis is placed on speed and mobility in establishing communication. Existing wire lines are used along the axis of operations. A minimum lateral wire system is installed on each delaying position to include one line to each rifle company and the heavy mortar platoon. Visual signals and motor or air messengers are used. Communication to distant, detached, and motorized or mechanized units usually is limited to radio and messenger. Timely reconnaissance and planning are necessary for communication on successive delaying positions. New wire lines usually are not laid for communication between successive positions.

48. Retirement

Communication during a retirement is similar to communication during movement to contact. When the enemy attempts to pursue vigorously, a series of delaying actions may be necessary to assist the retiring force to disengage. Communication is then maintained in the same way as described for a delaying action.

49. Relief of a Battle Group in Contact

Before the relief occurs, the battle group signal officer and key men from the communication platoon accompany the battle group commander and his reconnaissance party. They familiarize themselves with the communication system already in operation and make arrangements with the unit being relieved to exchange certain equipment and to take over the existing wire system in place. Equipment requiring extensive installa-

tion is exchanged. During the reconnaissance, the key wiremen familiarize themselves with all wire routes. The signal officer obtains a line-route map, circuit diagram, traffic diagram, and radio net diagram. He gets as much information as possible about road conditions and routes for messengers. He evaluates the conditions that affect radio communication and the probable interruptions of wire communication. Strict secrecy measures are taken to prevent the enemy from discovering the relief. These measures may include continuing the use of existing call signs, frequencies, codes, and ciphers of the unit being relieved.

50. Airmobile Operations

a. Special communication problems arise during the assault phase of an airmobile operation. Because of the dispersion of the units on landing, speed of action, and distances involved, communication is relatively difficult to establish.

b. During a battle group airmobile operation, radio is the principal means of communication. It is supplemented by messengers and other means to a lesser degree. The installation of the wire system is started as soon as practicable. To facilitate and expedite the establishment of this system, wire laying teams and their equipment from the communication platoon may be landed with the rifle companies. Portable radios are habitually carried into the landing area to facilitate prompt opening of radio nets on landing. Command radio nets usually are opened immediately after landing to help control the operation. Radio communication to the next higher commander is established immediately. Communication with transporting aircraft and naval forces is provided through the air control team and naval liaison personnel. When airmobile operation is near the seacoast, naval gunfire teams also may accompany the landing and provide communication with naval support craft.

c. The size, weight, and amount of equipment landed with the battle group during the assault are limited. Only equipment that is carried with the men in their transporting aircraft is available at first. This equipment includes portable voice radios and batteries, field telephones, light wire, panels, and small switchboards. Larger reserves of communication supplies and equipment are necessary to compensate for losses during the landing. Resupply plans include equipment and supplies to meet communication requirements.

d. Communication personnel are assigned throughout air serials. A radio operator assigned to a unit commander or staff officer accompanies the officer in the same aircraft. Communication vehicle drivers land with their vehicles.

e. To acquaint himself with the tactical situation and to receive additional information and orders, the battle group signal officer assembles with the commander and staff. He makes his plans flexible to meet any requirement of a rapidly changing situation. See FM 57-35.

f. The communication platoon leader assembles his platoon. The platoon, less radio operators, wire teams, and messengers on special assignments, normally assembles with the headquarters company. The communication platoon leader reports the status of his men and equipment to the signal officer as early as possible. He directs the implementation of the communication plan and maintains contact with the signal officer to execute orders. The battle group CP is established immediately after the landing. When possible, it is opened in its predetermined location.

CHAPTER 3

SUPPLY AND MAINTENANCE PLATOON

Section I. MISSION, ORGANIZATION, DUTIES, AND INSTALLATIONS

51. Mission

The supply and maintenance platoon performs supply, transportation, and maintenance functions for the battle group.

52. Capabilities

The platoon is capable of—

- a. Organizing, establishing, and operating trains areas for the battle group.
- b. Requesting, receiving, and distributing all classes and types of supplies from the division technical services and the army ammunition supply point. (See AR 320-5 and FM 57-21 for a discussion of supplies by classes.)
- c. Maintaining sufficient records and control to show the status of supply and equipment within the battle group and to insure that timely requests for resupply are submitted to higher headquarters.
- d. Performing first and second echelon maintenance within the capabilities of the personnel and authorized tools.
- e. Evacuating all types of equipment, within its limited capabilities that require a higher echelon of maintenance.
- f. Establishing a collecting point for salvage, excess, and captured enemy materiel.
- g. Operating a conventional battle group supply office when in garrison.
- h. Providing terminal guidance for Army aircraft in airborne operations and aerial resupply missions.

53. Organization

The supply and maintenance platoon is organized into a platoon headquarters, maintenance element, ammunition squad, and a truck squad. This organization permits a high degree of flexibility and a 24-hour operational capability.

- a. The *platoon headquarters* forms and directs the operation of the battle group field trains.
- b. The *maintenance element* has primary responsibility for the second echelon maintenance of the wheeled and tracked vehicles of the battle group. The section procures, stores, and supervises all technical service repair parts for second echelon maintenance of wheeled and tracked vehicles in accordance with battle group prescribed load lists.

c. The *ammunition squad* has the primary responsibility for establishing and operating the battle group ammunition distributing point. Using organic trucks, the ammunition is drawn from the army ammunition supply point and issued at the battle group ammunition distributing point or delivered to subordinate units.

d. The *truck squad* has the primary responsibility for transporting mess equipment and personnel, individual bed rolls, and the reserve ration for all companies of the battle group. When the trucks are not being utilized to transport one of the above, they are available for troop transport or other resupply missions.

54. Individual Duties

a. The *platoon leader* is responsible for the accomplishment of the platoon mission. He is assistant S4. He is responsible for the field trains, to include its operation, movement, security, and the selection of its exact location. He maintains communication with the S4 in the battle group administrative net.

b. The *maintenance warrant officer* directs activities of the maintenance element and coordinates with attached and/or supporting ordnance units for maintenance and repair parts. Technical supervision of the maintenance warrant officer and maintenance element is the responsibility of the motor officer. (See FM 7-40.)

c. The *supply warrant officer* supervises the operation of the supply element, maintenance of supply accounting records, preparation of formal supply requisitions, distribution of classes II and IV supplies, operation of the ration distribution point and the salvage collecting point.

d. The *motor sergeant* supervises the operation of the vehicle dispatch office and assists the maintenance officer with the control and coordination of maintenance on wheeled and tracked vehicles of the battle group.

e. The *supply sergeant* assists the supply warrant officer in supervising the supply operation of the platoon.

f. The *assistant supply sergeants* perform supply duties as assigned by the supply warrant officer or supply sergeant.

g. The *ration distribution sergeant* assists the supply warrant officer in processing the daily ration requirements. He also establishes and operates the class I distributing point.

h. The *wheeled and tracked vehicle mechanics* perform second echelon maintenance on organic vehicular equipment and assist the drivers with first echelon maintenance.

i. The *ordnance parts specialist* procures and maintains repair parts recordings to prescribed lists for issue to elements of the battle group.

j. The *supply clerks* perform clerical duties connected with supply and supply accounting.

k. The *ammunition squad leader* directs the activities of his squad and operates the battle group ammunition distributing point. He is assisted by the ammunition specialist.

l. The *truck squad leader* directs the activities of his squad and assists the motor sergeant in dispatching and controlling the vehicles of his squad.

55. General Supply Procedures

a. Equipment and supplies to be carried by individuals and units of the battle group are listed in TOEs and directives from commanders.

b. Requests for supplies are submitted through supply channels. Units submit requests (a written message, telephone call, radio message, etc.) to the supply and maintenance platoon headquarters. Necessary consolidations, postings, and requisitions are prepared at that headquarters. The headquarters then forwards the requisitions to division.

c. In normal situations, division distributes all classes I, II, III, and IV supplies by unit distribution. A 1-day reserve of rations is carried on each of the 1½-ton cargo trailers of the truck squad. The battle group does not have the capability to effect its own resupply by supply point distribution, except for ammunition and emergency class I supplies. Ammunition (class V) resupply is by replenishment from army ammunition supply points utilizing the transportation organic and attached to the battle group.

d. Salvage collected by the battle group is transported to the rear in any available transportation going to the rear.

56. Systems of Supply

a. *General.* The systems for supply and resupply within the battle group are planned, coordinated, and supervised by the S4. The operation of the systems is the responsibility of the supply and maintenance platoon leader, who utilizes the supply and maintenance platoon headquarters as a primary means of exercising operational control and coordination.

b. *Class I Supplies.*

(1) *Requests and requisitions.* All units of the battle group authorized a kitchen and mess personnel report daily to the platoon headquarters the number and types of rations desired for the next succeeding 24-hour period. The deadline for this report is established in the battle group SOP or administrative order. The ration specialists consolidates the company daily ration requests by number and type of rations and submits the request daily to division.

(2) *Distribution.* Division delivers rations to the battle group distributing point in the field trains area (operated by the ration distributing sergeant). Here, rations are broken down into unit lots according to the unit ration requests originally submitted by the units. Distribution to the kitchens may be by unit or supply point distribution.

c. Class II Supplies.

- (1) *Requests and requisitions.* Elements of the battle group normally enter combat with all authorized class II items. When a class II item is lost, damaged, destroyed, or worn out, the unit commander makes a request for a replacement to the supply and maintenance platoon headquarters by message or radio. If loss or destruction was due to enemy action, his request must be supported by a certificate of combat loss. Requests for such items are submitted immediately and the certificate of combat loss submitted as soon as practicable. Class II request are consolidated for all units of the battle group, posted, and placed on requisition by the platoon headquarters. The requisitions are then transmitted to division.
- (2) *Distribution.* Division delivers class II items to the battle group field trains area. Here the supplies are broken down into unit lots according to requests submitted by the units. The supplies are normally delivered to the requesting units by mess personnel, along with the rations. A large requirement of class II items, such as a change from cotton to woolen clothing, is usually distributed when the battle group is out of contact with the enemy.

d. Class III Supplies.

- (1) *Requests and requisitions.* No formal requisitioning procedure is established for class III supplies. The supply and maintenance platoon submits a daily estimate of class III requirements to division. The estimate is based on the distance the battle group will move, distances to supply points, and the quantity and type of transportation involved. The details of the report and deadline time for submission are included in division SOPs or administrative orders.
- (2) *Distribution.* POL is resupplied by division attachment to the battle group of one or more 1,200-gallon gasoline tank trucks. The use of 5-gallon gasoline cans is held to a minimum. A gasoline tank truck may be sent to the company distributing point if the tactical situation permits; otherwise, units send vehicles back to the battle group field or combat trains areas for refueling.

e. Class IV Supplies.

- (1) *Requests and requisitions.* With two exceptions, a request for class IV supplies is handled essentially in the same manner as that for class II items. One of the primary differences is that requests for class II items are based on an authorized Department of the Army allowance, whereas class IV requests are for items not included in such prescribed allowance tables. The other difference is that class IV supply requests require command authorization.

- (2) *Distribution.* Division delivers class IV items to the battle group field or combat trains areas. Here the supplies are broken down into unit lots according to requests submitted by the units. The supplies are delivered to the requesting units on transportation going from the battle group to the units. It is frequently necessary, however, to make special delivery trips from battle group to the units because of the size, bulk, and quantity of the supplies, and because of the urgent need.

f. Class V Supplies.

(1) *Definitions.*

(a) *Basic load.*

1. Units enter combat with a basic load of ammunition. The basic load is the ammunition carried by individuals and on vehicles of a unit. It includes ammunition carried by the individual soldier, stowed on self-propelled weapons carriers, and carried on prime movers and unit trains. For ammunition items fired from weapons, the basic load is expressed in rounds per weapon; for bulk allotment items such as grenades, mines, and demolitions, it is expressed in units such as "each" or "pound."
2. The basic load is a fixed amount of ammunition established by Department of the Army concurrently with the publication of tables of organization or changes to them.
3. The basic load gives a unit sufficient ammunition to initiate combat. In addition, it provides a tactical reserve to meet emergencies such as temporary delay in replenishment or unexpected heavy expenditures.

(b) *Required supply rate.*

1. The required supply rate is the estimated amount of ammunition required to sustain the operations of any designated force without restriction for a specified period. For ammunition items fired from weapons, this rate is expressed as rounds per weapon per day; for bulk allotment items, it is expressed in the appropriate unit of measure per individuals, organization, or vehicle per day.
2. The required supply rate is computed on or applied to tactical weapons in tactical units only.

- (c) *Available supply rate.* The available supply rate is the rate of consumption of ammunition that can be sustained with available supplies, as announced by each commander and applicable within his command. This rate is flexible in that available supplies need not be distributed equally to subordinate units. Essentially, it is used as a control on the amount of ammunition which may be drawn and expended by a unit. The rate is computed on, and applied to, tactical weapons only; i.e., weapons in divisional and other tactical units.

Weapons in support units are excluded unless unusual circumstances necessitate their employment in a combat role. The rate is expressed the same as required supply rate; i.e., rounds per weapon per day; units of measure per organization, individual, or vehicle per day.

- (2) *Requests and requisitions.* Elements of the battle group submit informal requests for ammunition by type and amount to the combat trains. Combat trains are resupplied with ammunition from the field trains.
- (3) *Distribution.* Class V supplies are issued to forward units at the battle group combat trains area or delivered to forward units when unit distribution is in effect. The ammunition squad operates under the supervision of the squad leader. When unit requests are received, they are checked and recorded by the ammunition specialist. Ammunition is then issued to the requesting unit. When one or more of the ammunition squad vehicles in the field trains are unloaded, an ammunition requisition is prepared. Then the vehicles are sent to the army ammunition supply point to draw a resupply. En route, the leader of the vehicle(s) or the driver(s) stops at the division ammunition office and presents the ammunition request to the DAO. Once the DAO approves and authenticates the ammunition requisition, the drivers proceed to the supply point, draw the ammunition, and return to the battle group field trains area.

g. Repair Parts.

- (1) *Requests and requisitions.* Elements of the battle group normally enter combat with all authorized repair parts. When a repair part is consumed, a replenishment part is requested from the supply and maintenance platoon. Authorized signal and ordnance repair parts of the supply and maintenance platoon are normally replenished by technical service mobile repair teams. Parts authorized for use by the battle group but not ordinarily stocked are requisitioned by the maintenance warrant officer through channels, using the requisitioning procedures established by AR 711-16.
- (2) *Distribution.* Repair parts are delivered to the supply and maintenance platoon. It makes necessary distribution to the units.

Section II. COMBAT SUPPLY OPERATIONS

57. Battle Group Trains

a. General. Trains are those vehicles and accompanying personnel that provide the logistical support for a unit of the battle group. They are grouped according to the function they perform.

b. *Combat and Field Trains.* Trains are classified according to their tactical employment and disposition.

- (1) *Combat trains* are those vehicles and accompanying personnel required for the immediate support of the combat mission. They accompany the combat element and are controlled by the combat commander. In the BG, the S4 exercises staff supervision of the BG combat trains. The battle group motor officer is normally placed in charge.
- (2) *Field trains* are those vehicles and accompanying personnel not required for the immediate support of the combat mission. They do not accompany the combat units and are controlled by the supply and maintenance platoon leader. In the platoon leader's absence, they are controlled by the supply warrant officer.

58. Composition of Battle Group Trains

a. The support elements of the battle group are employed by using combat and field trains to provide the best means of logistical support.

b. A high degree of flexibility is essential in the composition of the BG combat trains. The trains consist of maintenance, medical, ammunition and fuel vehicles required for the immediate support of combat operations—generally those supply vehicles required to effect immediate resupply.

c. The composition of the battle group combat trains varies according to the mission, tactical situation, attached or supporting units, and such other factors as terrain, climate, and time and space. In an exploitation, it may be desirable to place most of the vehicles of the battle group trains in the combat train.

59. Battle Group Field Trains Area

The battle group field trains area is the focal point for logistical operations in the battle group. It is located so as to efficiently provide logistical support for the battle group without presenting a profitable nuclear target. The activities within the area are under the staff supervision of the battle group S4. It includes such installations as indicated in figure 5, plus installations or trains of attached and supporting units.

60. Characteristics of Battle Group Field or Combat Trains Areas

a. The battle group trains areas should—

- (1) Be convenient to the units being served. If possible, there should be a convenient road net front to rear that will allow units to reach the areas quickly and easily. The road system should contain alternate routes so that movement can still be made even though some roads are cut off by excessive travel or enemy activity.

- (2) Not interfere with the operations of the combat elements. The areas must be far enough from the combat elements so that they do not occupy space needed by these units. Supply and maintenance activities and vehicular traffic must not impede a tactical unit's freedom of movement.
- (3) Contain sufficient area to permit dispersion of vehicles and activities.
- (4) Offer concealment from hostile ground and aerial observation.
- (5) Offer firm ground for parking vehicles.
- (6) Be where no terrain feature, such as an unfordable river, is or may become a barrier to supply operations.
- (7) Contain terrain features that favor defense against air or ground attacks and facilitate local security.
- (8) Be so disposed that, in conjunction with other installations, they do not permit a nuclear target to develop.
- (9) Offer, if appropriate, a suitable landing site for attached or supporting Army aircraft employed in resupply activities.

b. In addition, the location of the train areas is influenced by two other factors; i.e., water for vehicles and bathing, and the range of the mass of enemy light artillery fire.

61. Activities in the Battle Group Field or Combat Trains Areas

Activities in the battle group field or combat trains areas include (fig. 6):

a. Field Trains.

- (1) Class I distributing point.
- (2) Kitchen areas for all unit kitchens (when under battle group control).
- (3) Maintenance area.
- (4) Class III distributing point (gasoline tank trucks from the division quartermaster company).
- (5) Bath and clothing exchange units (when allocated to the battle group from division quartermaster company).
- (6) Motor park.
- (7) Salvage collecting point.
- (8) Collecting points for excess equipment and captured enemy materiel.
- (9) Class V distributing point.
- (10) A drop zone or aerial resupply point.
- (11) Elements of trains of attached units.

b. Combat Trains.

- (1) Class III distributing point.
- (2) Class V distributing point.
- (3) Limited maintenance facilities.
- (4) Medical elements.
- (5) Elements of trains of attached units.

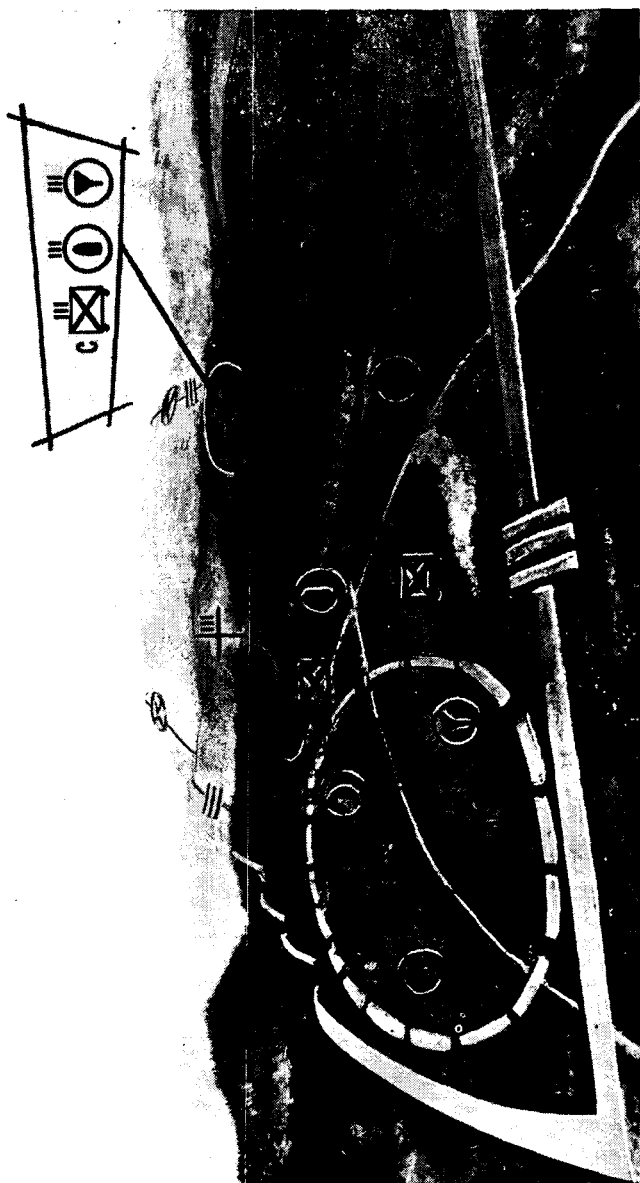


Figure 5. Battle group field and combat trains area.

62. Resupply for Subordinate Elements of the Headquarters and Headquarters Company

a. *Requests and Requisitions.* Subordinate elements of the headquarters and headquarters company request all supplies in the same manner as the other units of the battle group.

b. *Distribution.* Supply point distribution from the battle group field trains area is normal.

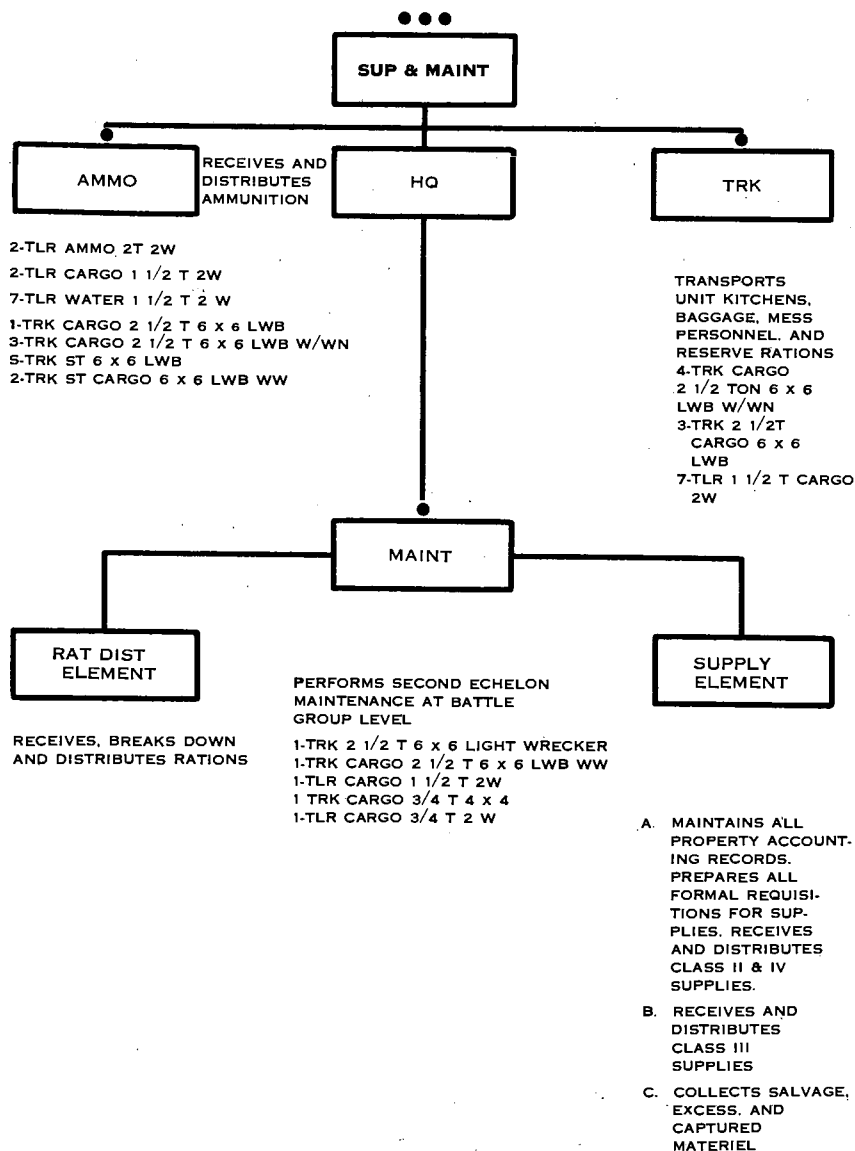


Figure 6. Supply and maintenance platoon activities.

63. Aerial Resupply

a. *Requests and Requisitions.* Aerial resupply requests and requisitions follow the same procedure as prescribed for routine requests.

b. *Coordination.* All aerial resupply is coordinated at division. Division notifies the supply and maintenance platoon of the time and place aerial delivery can be expected.

c. *Direct Delivery to Requesting Unit.* If direct aerial delivery is requested, and division approves it, the requesting unit must establish terminal guidance and recover its own supplies at its drop zone or aerial resupply point.

d. *Delivery to Battle Group.* If aerial resupply to battle group is to be made, the supply and maintenance platoon leader must establish a drop zone or aerial resupply point. (See note.) He must furnish terminal guidance and insure that the supplies are recovered. It may be necessary for him to request assistance from the requesting unit or from the battle group reserve elements for the recovery operation.

Note. (For details as to the selection and preparation of a suitable area for drop zone, see FM 57-30 and FM 1-100.) As a minimum, the drop zone should be easily recognizable from the air under the expected conditions of visibility and located so as to permit a straight approach by the aircraft. The procedure for marking the drop zone depends on the tactical situation, communications available, weather, and visibility. The drop zone should be marked with panels (or lights in low visibility), smoke, and electronic navigational aids. The panels or lights are set up in a prearranged single block letter of the alphabet (excluding B, D, G, I, Q, W, and M) approximately 30 meters high and wide and readable from the desired direction of flight of the delivery aircraft. Radio communication with the delivery aircraft from the drop zone is highly desirable to provide the pilot with navigational aid, wind conditions, and possible enemy interference. How the drop zone is marked depends on the parent service of the delivery aircraft. With Air Force aircraft, Army personnel tell the pilot the desired impact point on the drop zone and the pilot computes the release point for dropping the supplies; with Army aircraft, Army personnel tell the pilot where to release or drop the supplies so that the supplies land on the drop zone.

e. *Air Force Aircraft.* The prearranged code letter is placed on the drop zone at the desired impact point. This location will be given to the delivery aircraft using the applicable Universal Transverse Mercator Grid (UTMG). The aircraft then computes the release point using the Computed Air Release Point (CARP) system.

f. *Army Aircraft.* The location of the prearranged code letter is immaterial; it merely identifies the drop zone to the aircraft. In addition to the code letter, a T is laid out with panels (or lights) on the drop zone with the stem of the T pointing toward the desired direction of approach of the aircraft. The aircraft will fly up the stem of the T, releasing its bundles as it crosses the junction of the stem and crossbar. The T must be so located that the impact area of the supplies is on the drop zone.

64. Functions of Platoon Headquarters

The platoon headquarters operates primarily as a control and coordination center for the logistical activities of the battle group, except

medical service, under the supervision of the S4. The headquarters prepares and submits reports and estimates, consolidates requests for supplies, establishes priorities, disseminates logistical information, computes experience data, supervises the receipt and distribution of supplies, exercises control over the field trains area, controls battle group transportation, and maintains continual liaison with the division trains.

a. Supply operations (by class) are to—

(1) *Class I.*

- (a) Prepare the daily ration request and submit it to division.
- (b) Disseminate the battle group feeding plan.
- (c) Supervise kitchen and mess personnel.
- (d) Coordinate ration issues to unit kitchens.

(2) *Class II.*

- (a) Consolidate unit requests and prepare requests to division (through supply channels).
- (b) Maintain records on regulated items.
- (c) Coordinate issues to requesting units.
- (d) Maintain property accounting records.

(3) *Class III.*

- (a) Prepare and submit the daily estimate of Class III expenditures to division.
- (b) Coordinate issues to requesting units.

(4) *Class IV.*

- (a) Consolidate unit requests and prepare requisitions to division (through command channels).
- (b) Coordinate issues to requesting units.

(5) *Class V.*

- (a) Supervise the consolidation of unit requests to insure rapid replenishment of supply.
- (b) Maintain records as required regarding expenditures, available supply rate, etc.
- (c) Coordinate issues to requesting units.

(6) *Miscellaneous supplies.* Receive and process requests and supervise distribution to requesting units in the same manner as for other supplies, except for maps.

b. Maintenance operations are to—

- (1) Supervise activities of the maintenance warrant officer.
- (2) Submit timely requests for repair parts for maintenance.
- (3) Establish priority of work.
- (4) Coordinate activity of maintenance elements attached to battle group from higher headquarters.

c. Transportation operations are to—

- (1) Establish priorities for use of battle group supply vehicles.
- (2) Coordinate use of vehicles when they are pooled as an operational expedient.

- (3) Coordinate operational use of vehicles with units to insure that proper and timely scheduled maintenance is performed.
 - (4) Coordinate activities of administrative and logistical vehicles attached to battle group from higher headquarters.
 - (5) Establish and disseminate traffic plans and routes within the battle group area.
- d. *Aerial resupply operations are to—*
- (1) Supervise operation of the drop zone or aerial resupply point.
 - (2) Coordinate aerial resupply missions with the requesting units, division trains, and other interested agencies.
 - (3) Provide terminal guidance for aerial delivery at the drop zone or aerial resupply point.

65. Mess Management

a. *Types of Rations.* (See FM 101-10 for types of rations currently in use.)

b. *Control of Kitchens.*

- (1) Since unit messes are normally under battle group control, the kitchens are located in the field trains area. The control of kitchens involves the supervision of the preparation of food and the control of necessary transportation.
- (2) Kitchens may be released to unit control. In this case, they may be located at the unit mess location. Kitchens are located as close as possible to the troops they are serving.
- (3) All factors should be considered in determining the method of control that most nearly meets the requirements of a given situation. All methods should be practiced during training so units can operate efficiently under each method. The method of control is recommended by the S4 and is determined by—
 - (a) The tactical situation.
 - (b) The area over which the battle group is deployed.
 - (c) Cover and concealment in the forward areas.
 - (d) The road net.
 - (e) The feasibility of delivering rations on vehicles close to forward troops.
 - (f) Enemy observation and fire.
 - (g) The type of ration in use.
 - (h) Overall efficiency, including conservation and security of vehicles and facility of control.
 - (i) The desires of the unit commanders.

c. *Battle Group Control.*

- (1) Battle group control of kitchens provides maximum flexibility and efficiency in the use of cargo trucks and facilitates ration distribution. It locates the kitchens centrally. This permits close supervision by the supply and maintenance platoon leader, thus relieving the unit commanders of an administrative burden.

Kitchens under battle group control, however, are located farther from the troops, making execution of the unit feeding plan more difficult and increasing the possibility that the food will not be as hot or as palatable as desired. Further, the cargo vehicles are not immediately available to the units for other uses.

- (2) When kitchens are located at battle group, the supply and maintenance platoon leader supervises meal preparation and delivery of food. He issues necessary instructions, supervises loading of food and water, and controls vehicle movement to the battle group release point, where they are released to unit control. Guides from each unit meet their trucks and guide them to the unit locations. When feeding is completed, vehicles return to the battle group release point, where the supply and maintenance platoon leader assumes control.

d. Unit Control.

- (1) In a static or reserve situation, unit messes may be under the direct control of the unit commanders.
- (2) Advantages to company control of the unit kitchens are—
 - (a) The kitchen and kitchen personnel are under the immediate control of the unit commander.
 - (b) Unit feeding plans are simpler and easier to change and disseminate than battle group feeding plans.
 - (c) Troops can be served hotter and more palatable food.
 - (d) The unit gains the control and use of the truck used to transport the kitchen.
 - (e) Feeding time is lessened.
- (3) Disadvantages of unit control of the unit kitchens are—
 - (a) Mess personnel serving forward area units may be exposed to hazards that interfere with the preparation of food.
 - (b) The unit commander is given an added administrative burden.
 - (c) When truck squad vehicles are attached to companies, cargo trucks are not immediately available to battle group for use in transporting troops and obtaining supplies.

e. Feeding Plans.

- (1) The S4 transmits the battle group feeding plan to the unit commanders as early as possible to allow mess personnel maximum time to prepare meals. The feeding plan includes all or part of the following instructions:
 - (a) Time and place of ration issue.
 - (b) Control of kitchens.
 - (c) Vehicles to be employed for delivery.
 - (d) Additional items of supply that are to be sent forward.
 - (e) Time vehicles will leave kitchen locations.
 - (f) Designation or release point.

- (g) Time vehicles are released to unit control and time they revert to battle group control.
 - (h) Any restrictions on movement.
- (2) The unit feeding plan is based on the battle group plan. It includes—
- (a) Type of ration to be fed.
 - (b) Selection of unit feeding area.
 - (c) Arrangements for vehicles, guides, and carrying parties.
 - (d) Release and return of vehicles.
 - (e) Supervision of vehicles while under unit control.
 - (f) Arrangements for feeding attached personnel.
- (3)(a) When rations arrive at the unit kitchen, the mess steward separates them into three meals. The unit feeding plan is prepared by and transmitted from unit commanders to their mess stewards. The mess personnel, with the feeding plan as a guide, then prepare the proper amount of food and place it in hot food containers for serving. It may be served either at the kitchen location or the forward unit positions.
- (b) Combat elements are usually provided with one-burner cooking units. These units are designed for individual or small group use when it is not otherwise practicable to deliver hot food.
- (4)(a) The situation dictates whether food and water can be delivered to forward positions from the kitchen during daylight or darkness. Food and water are usually transported to unit mess locations by $2\frac{1}{2}$ -ton cargo trucks or by $\frac{1}{4}$ -ton trucks with trailers. In rough terrain the use of pack animals or hand-carrying parties may be necessary. Civilian porters may be used for hand carry in order to maintain combat strength of the units concerned.
- (b) Any combination of methods of food delivery may be used. Food may come part of the way forward on $2\frac{1}{2}$ -ton trucks and then be transferred to $\frac{1}{4}$ -ton trucks and trailers. Or, it may be delivered to unit mess locations, using the $2\frac{1}{2}$ -ton trucks for the entire trip. Or, $\frac{1}{4}$ -ton trucks and trailers of the units may be sent all the way back to battle group to pick up the food.
- (c) Often the combat situation does not permit one or more of the forward area platoons to come back to the unit mess location; these platoons then are fed by delivering the food in $\frac{1}{4}$ -ton trucks, if practicable, or by carrying parties. Empty hot food containers are returned to the unit mess location. These containers and those used at the mess location are returned to the rear, cleaned by the mess personnel, and are ready to be used in serving the next meal.

- (5) The unit commander selects the mess location. It should be convenient to the troops and accessible to vehicles carrying food, large enough to permit the dispersion of troops being fed, provide for concealment from hostile observation, and offer protection from flat trajectory fire. When practicable, personnel are fed at the unit mess location.
- (6) Food and water may be delivered to attached elements in several ways. The method used depends on the tactical disposition of the unit, the terrain, distance from the parent unit, and size of the attachment. Elements of units employed in support of a rifle company are usually fed by their parent units, but difficult terrain or distance from the parent kitchen may make this inadvisable. Under such circumstances, the ration is drawn and may be prepared by the parent unit before delivery to the kitchen of the supported company.
- (7) The unit providing mess facilities for the battle group medical platoon provides, to the extent possible, hot sustaining food on a 24-hour basis for the patients who pass through the battle group aid station.

f. Water.

- (1) Water, although a miscellaneous item of supply, is generally delivered with food. The battle group draws its water in 5-gallon cans and water trailers which are sent to the water point to effect resupply for the unit. If possible, a water purification bag is set up at the mess location and filled from the 5-gallon cans so that several men can fill their canteens at one time. This practice prevents waste that would result if the water purification bag were not used. Some 5-gallon cans of water may be left in forward areas.
- (2) If water is not available at engineer water points, several expedients are available to purify water before it is used for cooking and drinking. Such methods include use of calcium hypochlorite, individual water purification tablets, and boiling. For details concerning water purification, refer to FM 21-10.

Section III. MAINTENANCE

66. General

a. Maintenance is any action taken to keep materiel serviceable or to restore it to serviceability. Essentially, maintenance is the care taken and the work done to keep an item of equipment, clothing, or supply serviceable.

b. Maintenance of materiel includes testing, servicing, classifying, repairing, overhauling, evacuating, and reclaiming.

67. Principles of Maintenance

a. Commanders are responsible for maintenance within their commands and for the supervision and inspection of maintenance activities.

b. Preventive maintenance is the keystone of the Army maintenance system. It includes systematic servicing, inspection, correction of initial failure before damage occurs, detection and correction of abuse, and teaching the proper care and use of equipment. Preventive maintenance of vehicles, scheduled at definite intervals, prevents a large number of vehicles from being out of service at any one time.

c. Repairs are made as far forward in the combat zone as the tactical situation permits. This eliminates time-consuming evacuation measures and serves to return the equipment to the using unit much quicker.

d. Authorized supplies of repair parts and tools are maintained within the battle group to insure quick and efficient repair.

e. When possible, repair personnel go to the equipment rather than having equipment evacuated to repair personnel.

68. Systems of Maintenance

For flexibility and efficiency, maintenance is based on organizing repairs into categories and echelons. These categories are organizational maintenance, field maintenance, and depot maintenance. The echelons of maintenance run from first through fifth.

69. Organizational Maintenance

a. Organizational maintenance is defined as that work and repair done on unit equipment by unit personnel.

b. Within the battle group, organizational maintenance is performed by drivers, wearers, crews, and users of equipment, and by specially trained mechanics and repairmen.

c. Organizational maintenance includes first and second echelon work.

- (1) First echelon maintenance is performed by the user, wearer, operator, or crew of the equipment. It provides for proper care, use, operation, cleaning, preservation, lubrication, and such adjustment, minor repair, testing, and parts replacement as may be prescribed by pertinent technical publications and tool and parts lists.
- (2) Second echelon maintenance is performed by specially trained personnel in the using organization. Appropriate publications authorize tools, necessary parts, supplies, test equipment, and personnel to perform work beyond the capabilities and facilities of the first echelon.

70. Inspections

a. Inspections are the means whereby commanders of all units ascertain the serviceability of equipment and the efficiency of maintenance.

b. Inspections must be carefully planned and executed. Definite objectives must be ascertained. Inspectors are briefed as to what they are to inspect and what they are to look for. Reports of inspections are carefully studied to determine trends, efficiency of present maintenance, corrective measures required, and to compare present maintenance with that reflected in previous inspection reports.

71. Vehicle Maintenance

a. Driver (or crew) maintenance is performed by drivers of trucks and the crews of crew-served vehicles. Drivers use authorized tools to perform first echelon maintenance. Their maintenance includes servicing with fuels, lubricants, coolants, and air; inspecting; cleaning; tightening; and caring for tool and accessories. They do not make any adjustment on the vehicle that should be made by a mechanic.

b. Each company commander is responsible for the direction and supervision of driver maintenance duties. Driver preventive maintenance services are shown in the vehicle and equipment operation record (DD Form 110) and include before-operation services, during-operation services, at-halt services, and after-operation services. Defects requiring maintenance beyond the scope of the driver are noted on this form and reported so that corrective action may be taken.

c. Second echelon maintenance is performed by the mechanics of the supply and maintenance platoon. These mechanics perform the quarterly or 3,000-mile preventive maintenance service on all organic wheeled vehicles, and the quarterly or 750-mile preventive maintenance service on organic tracked vehicles in accordance with TM 9-2810. Although the mechanics normally operate at the battle group field trains area, they may operate in the combat trains and go to forward areas to assist in the maintenance, repair, or evacuation of wheeled vehicles.

Section IV. REPAIR, SALVAGE, AND MISCELLANEOUS ACTIVITIES

72. Repair

a. Timely repair of all equipment is essential. Minor repairs on company weapons are accomplished by the individual users or the unit armorer. Items requiring more extensive repairs are evacuated to the battle group collecting point in the field trains area. Battle group, where practicable, repairs the equipment and returns it to the companies. If battle group cannot repair an item, the supply warrant officer of the supply and maintenance platoon evacuates it to a division collecting point established by the technical services and procures and issues a replacement item.

b. A report concerning damaged equipment that cannot be evacuated by units of the battle group is sent to the combat trains. Repairs on

such equipment are made on the spot by service personnel, or the equipment is evacuated by special vehicles and crews to appropriate maintenance agencies.

c. The repair of signal equipment begins with the using unit. The radio mechanics assigned to the communication platoon are responsible for the performance of second echelon maintenance. If they cannot make the necessary repairs, the item may be made reserviceable by the forward repair section of the support platoon or direct exchange may be made and the defective equipment evacuated to the division signal battalion. The signal battalion establishes forward repair sections to service equipment as requested by battle group (pars. 13 and 19).

73. Salvage

a. Unit commanders are responsible for salvage discipline, which includes collecting and moving salvage to collecting points. Normally, combat units evacuate salvage to the battle group field trains area, utilizing vehicles making supply trips.

b. A battle group salvage collecting point is established by the supply and maintenance platoon; it operates under the supervision of the supply warrant officer. This collecting point may operate a collecting point for salvage, excess, and captured enemy materiel. When practicable, materiel brought to this point is segregated into appropriate technical service lots and evacuated to division. The supply warrant officer coordinates the evacuation of such materiel with the dispatcher of vehicles going to the rear from the field trains area.

c. Technical services at division establish collecting points for salvage, excess, damaged items, and captured enemy materiel.

74. Excess

Items in excess to the needs of the battle group are collected and evacuated through supply channels in the same manner as salvage. Effort is made to collect excess and return it to division for later issue through supply channels.

75. Captured Enemy Materiel

a. Captured enemy materiel is collected and evacuated in the same manner as salvage. The battle group commander controls the distribution and use of captured supplies. Captured enemy materiel is always reported to the next higher headquarters, where it may be a source of intelligence information.

b. Enemy weapons are used only in emergencies. When they are used, friendly troops are notified. This prevents the characteristic sound of such weapons from attracting our own fire. Weapons or equipment that appears to be of new or unusual design is evacuated through intelligence channels.

76. Evacuation of the Dead

Since there are no personnel provided at battle group level for identification and evacuation of the dead, the battle group depends entirely on division and higher headquarters for support. This support comes primarily from the division quartermaster company. Should the division or battle group suffer heavy casualties, additional support could be expected from nondivisional graves registration units. Under normal conditions, the division quartermaster company furnishes a three-man collecting and evacuation section to the battle group with the responsibility for evacuating remains for forward areas to the division collecting point. This section operates in the field trains area under the supervision of the battle group S4.

77. Destruction of Vehicles and Equipment

When necessary, equipment (except medical) is destroyed to deny its use to the enemy. The decision to destroy equipment is made only on authority delegated by the division or corps commander. Plans for destruction are prepared in the event of imminent capture.

78. Decontamination

The supply and maintenance platoon must be prepared to perform limited chemical, biological, and radiological decontamination of personnel, supplies, and equipment. It should make provisions to procure necessary decontamination supplies. Personnel should be familiar with field methods of decontamination as given in FM 21-40 and TM 3-220.

CHAPTER 4

ENGINEER PLATOON

Section I. GENERAL

79. Mission

The mission of the engineer platoon is to increase the combat effectiveness of the battle group by performing general engineer work and fighting as infantry when required.

80. Capabilities

a. The platoon is organized and equipped to perform minor engineer tasks such as repairing and improving roads and bridges; constructing field works that require special equipment or training; installing and recording minefields; performing minefield reconnaissance; supervising breaching or removal of friendly or enemy minefields and obstacles; preparing landing strips and helicopter pads as necessary; providing engineer advice or assistance in camouflage and in the construction of dummy fortifications and minefields; and performing engineer reconnaissance missions as required. The platoon can also prepare and place special demolition charges to support rifle elements in destroying or reducing enemy fortifications.

b. The platoon is completely mobile and capable of independent operations for short periods of time. In sustained operations away from the parent company, however, it must be attached to another unit for logistical support.

c. The platoon is provided with earthmoving equipment and power tools with which to accomplish a variety of tasks requiring engineer skills. It is equipped to furnish its own local security.

81. Organization

The platoon consists of a platoon headquarters and three engineer squads.

82. Duties of Personnel

a. Headquarters Personnel.

- (1) The *platoon leader*, an engineer officer, is responsible for the command, control, training, supply, and employment of his platoon. He normally operates under the staff supervision of the battle group S3. When an engineer company is not in support of or attached to the battle group, he acts as a special staff officer advising the battle group commander on engineer matters. He maintains close liaison with the divisional engineer to obtain needed technical advice.

- (2) The *platoon sergeant* is second in command. He performs specific duties as directed by the platoon leader.
- (3) The *radio operator* operates and performs first echelon maintenance on the platoon headquarter's AN/VRC-18 and AN/PRC-10 radios. He drives the platoon headquarter's 1/4-ton truck and is responsible for its driver maintenance, plus that of the 1/4-ton trailer.
- (4) The *tractor operator* performs first echelon maintenance on and operates the rubber tired scoop loader tractor.
- (5) The *toolroom keeper* issues and receives, and with the assistance of squad personnel, supervises the maintenance of engineer tools within the platoon headquarters.

b. Engineer Squad Personnel.

- (1) The *squad leader* is responsible for the command, control, training, and employment of his squad. He is qualified to perform all the duties of any member of his squad. He insures that proper maintenance is performed on the organic transportation, communication, weapons, tools, and special equipment of his squad.
- (2) The *combat construction specialist* is the second in command of the squad. He is qualified to supervise the repair or strengthening of timber bridges, construction or repair of culverts, hasty repair of damaged sections of roads, and construction of minor field works requiring special equipment or training. He is qualified to supervise the installation of wire and other obstacles.
- (3) The *demolition specialist* is trained to recognize, arm, neutralize, install, and remove friendly and enemy mines and boobytraps. He helps to train all members of the squad to assist him in performing his tasks. He is responsible for supervising the computing and prefabrication of demolition charges for electric or nonelectric firing and the proper placement and detonation of them.
- (4) The *pioneers* are trained to assist in accomplishing all combat engineering tasks. The pioneers will receive additional training in the operation of the rubber tired scoop loader tractor, serve as assistant operators for this item of equipment, and drive dump trucks when required. In addition, they will receive special training in the operation of the platoon portable electric tool set. All pioneers, as well as other members of the squad, are trained in the use of the platoon's mine detectors.

83. Communication

One AN/VRC-18 and one AN/PRC-10 radio are assigned to the platoon headquarters. The AN/VRC-18 places the platoon in the battle group administrative net and the AN/PRC-10 is used in the platoon net. One TA-312/PT telephone set is assigned to the platoon for use in the

battle group wire net. Each squad is equipped with an AN/PRC-10 radio to provide communications within the platoon.

Section II. EMPLOYMENT

84. Principles of Employment

The following principles of engineer employment should be considered when assigning missions to the platoon:

a. Unity of Command. Every effort must be made to maintain unit integrity. The platoon is trained as a team and performs best when operating as a team. Tasks are assigned to the platoon leader with the responsibility and authority for him to accomplish them by the most advantageous utilization of the varied skills of the platoon's members.

b. Technical Supervision. Technical supervision of the platoon's activities is principally exercised by the platoon leader. The specialized skills of all members are best utilized in an advisory capacity. They assist in training infantrymen in the operation of the basic engineer tools and equipment found in the engineer platoon.

c. Directed Effort. Maximum engineer effort within the battle group is obtained by the careful assignment of tasks to the engineer platoon with priorities for completion. Standard operating procedure for the platoon consists of prior planning, organization of working parties, procurement of required materials (either standard or expedient), and aggressiveness, coupled with initiative directed at accomplishing assigned tasks.

d. Working Reserve. Elements of the platoon not committed to performing specific tasks will maintain tools and equipment and be prepared to perform other task as required.

85 Methods of Employment

a. The tactical employment of the platoon is affected by the dispersion and rapidity of movement that characterizes the operations of the infantry battle group under conditions of nuclear warfare. However, the platoon's mobility enables it to move rapidly to any part of the axis of advance or zone of action to assist in maintaining the impetus of the attack. Four methods of employment of the platoon are—

- (1) *General support.* In general support, the platoon or a portion of it supports the efforts of the battle group as a whole under control of the battle group commander.
- (2) *Direct support.* In direct support, the platoon or a portion of it supports the efforts of a specific portion of the battle group. While the supported unit does not command the platoon or elements thereof, it has first priority on its support.
- (3) *Attachment.* The platoon is attached to a specific portion of the battle group when control of the platoon by the battle group

commander is impractical due to distance or the tactical situation: The platoon is attached to an attached engineer company from the infantry division engineer battalion when unity of engineer effort is desired.

- (4) *Attachment for operational control.* The platoon is most effectively employed when placed under the operational control of a direct support divisional engineer company. This provides for better overall coordination and supervision. It also provides a means for the platoon leader to obtain additional technical assistance, heavy equipment and operators, bridging material, logistical support, and engineer staff planning.

b. When a friendly nuclear explosion precedes the attack, the engineer platoon normally occupies a position with the assault elements of the battle group. After the explosion, the platoon moves with the leading elements in order to assist in removal of obstacles thus created. These obstacles may include felled trees, displaced enemy or friendly mines, and other obstructions that block the path of advance. The platoon is capable of neutralizing or removing minor obstacles through the use of hand placed demolition charges or organic construction equipment and handtools.

86. Defense

In the defense, the efforts of the platoon are concentrated on tasks of construction or destruction that will impede the mobility of the attacker. These measures include construction of all types of obstacles, as well as the execution of demolition tasks requiring the engineering skills of the specialists in the platoon. In addition, the platoon may furnish technical advisors to other units in the battle group to assist them in organizing the ground, recording minefields, preparing obstacles, and constructing field fortifications. The platoon is normally *employed in a general support role* or attached for operational control to the supporting divisional engineer combat company.

87. Retrograde

The principal mission of the platoon in a retrograde operation is to assist in the preparation of obstacles to impede the advance of the enemy. The platoon is normally attached to the attached divisional engineer company.

a. When the battle group is conducting a night withdrawal, all or a portion of the platoon may remain with the detachments left in contact. Any portion of the platoon not remaining with the detachments left in contact withdraws with the main body to the new defensive position.

b. When the battle group is conducting a daylight withdrawal, the engineer platoon supports the infantry units in contact.

CHAPTER 5

MEDICAL PLATOON

88. Organization

The medical platoon is organized into a platoon headquarters, a treatment section, and an evacuation section. The platoon normally operates under the direct supervision of the battle group surgeon, acting under authority delegated by the battle group commander.

a. The *platoon headquarters* consists of the following personnel:

- (1) A *medical corps captain* who is the platoon leader and also the treatment section leader. His duties include—
 - (a) Establishing and operating one or more aid stations.
 - (b) Personally supervising treatment of the sick and wounded in the battle group aid station.
 - (c) Keeping the surgeon informed of the medical situation at all times.
 - (d) Supervising the treatment and evacuation of the sick and wounded in the battle group area.
 - (e) Supervising the discipline, organization, employment, and training of the medical platoon.
 - (f) Making necessary reconnaissance for the relocation of the battle group aid station(s).
 - (g) Maintaining the medical records of the command.
- (2) A *medical service corps lieutenant* who is the assistant platoon leader. His duties include acting as the evacuation section leader, supervising the platoon's administrative activities, and other duties as the platoon leader may direct.
- (3) A *noncommissioned officer* who functions as platoon sergeant. He supervises the enlisted personnel of the platoon headquarters and assists the platoon leader and his assistant in supervising all nonprofessional activities of the platoon.
- (4) A *medical supply specialist* who procures and distributes medical and general supplies for the platoon.
- (5) A *general clerk* who maintains necessary medical and administrative records for the platoon except those pertaining to supply.

b. The *treatment section* consists of the following personnel:

- (1) A *treatment section sergeant* who helps the medical officer to operate the treatment section.
- (2) *Two field medical assistants* who treat patients in the battle group aid station(s) as prescribed by the medical officer.
- (3) *Seven senior medical aidmen* who, in combat and field training situations, are habitually attached to companies of the battle group on the basis of one per company.

- (4) *Four medical aidmen and four aid station attendants* who assist in the operation of the battle group aid station and in the treatment of casualties.
- c. The *evacuation section* consists of the following personnel:
 - (1) A *section sergeant* who supervises the activities of the section as directed by the evacuation section leader.
 - (2) *Fourteen 2-man treatment-evacuation teams*. Each team is composed of senior medical aidman and an aidman and is equipped with a field ambulance. These teams, operating mounted or dismounted as the tactical situation dictates, treat, collect, and evacuate patients within and from company positions.

89. Communication

a. The medical platoon is provided a telephone in the battle group wire communication system (fig. 2). Normally, this system provides communication with all major elements of the battle group and with supporting medical units.

b. Radio communication for the medical platoon is based on a radio set mounted in the platoon $\frac{1}{4}$ -ton vehicle and operating in the battle group administrative net (fig. 4). Four portable radios are provided the medical platoon and normally are used for control of treatment-evacuation teams and for communication between aid stations when two stations are operated simultaneously. This will normally be done over the battle group administrative net.

90. Functions of the Company Aidman

The company aidman, after initial self aid, gives emergency medical treatment to the sick and wounded of the battle group. He operates a company aid post which normally is located near the company CP, a focal point of communications. He treats and returns to duty the less seriously sick and wounded patients who require no further immediate treatment; directs those patients who can walk and who require further treatment to the battle group aid station; arranges evacuation transportation for litter patients, coordinating the activities of the supporting treatment-evacuation teams operating in his company area; and initiates emergency medical tags for those patients not previously tagged. He keeps the medical platoon leader informed of the medical situation in his company by means of messages transmitted through the battle group administrative radio net, by members of supporting treatment-evacuation teams, by walking wounded, or by company messenger. The company aidman helps the company commander to establish patient collecting points where necessary and supervises the vector control detail (AR 40-578) to insure that company hygiene and sanitation measures are effectively implemented.

91. Evacuation

After the casualty has been given emergency medical treatment, he is then evacuated to the battle group aid station by members of the evacuation section. When the tactical situation permits, field ambulances are used as far forward as possible to speed evacuation. Employment duties of evacuation personnel include—

- a. Maintaining contact with combat elements.
- b. Moving to the battle group aid station the patients who are unable to walk.
- c. Administering additional emergency medical treatment as needed.
- d. Directing or guiding walking patients to the aid station.
- e. Assisting in movement of the battle group aid station.
- f. Acting as messengers.
- g. Initiating emergency medical tags when necessary (time and situation permitting).
- h. Monitoring personnel, when indicated by the situation, for the presence of radiological contamination prior to medical treatment.

92. Battle Group Aid Station(s)

a. The first medical installation in the normal chain of evacuation is the battle group aid station operated by the treatment section of the medical platoon. The battle group aid station(s) is established as far forward in the battle group area as the tactical situation permits. It may be located farther forward in the attack than the defense. The aid station must be capable of splitting to meet tactical situations requiring dispersal of elements of the battle group. Considerations governing the location of the aid station include the following:

- (1) Tactical operation of the battle group.
- (2) Expected areas of casualty density.
- (3) Protection afforded by defilade.
- (4) Convergency of lines of drift.
- (5) Evacuation time and distance.
- (6) Cover and concealment.
- (7) Security.
- (8) Accessible evacuation routes to front and rear.
- (9) Avoidance of likely enemy targets such as bridges, fords, important road junctions, firing positions, and supply installations.
- (10) Location of open areas suitable for landing helicopter ambulances.
- (11) Communications.

b. At the aid station, patients requiring further evacuation to the rear are given additional emergency medical treatment and prepared for evacuation. Constant efforts are made to prevent unnecessary evacuation. Men with minor wounds and illnesses are treated and returned to

duty as soon as possible. Specific functions of the battle group aid station include—

- (1) Receiving and recording patients.
- (2) Examining and sorting patients and returning physically fit to duty.
- (3) Giving emergency medical treatment and preparing patients for further evacuation.
- (4) Preventing and treating shock.
- (5) Providing temporary shelter and protection for patients.
- (6) Providing temporary treatment for combat exhaustion cases.
- (7) Notifying the battle group S1 of all patients processed through the aid station, giving accurate identification and disposition as directed by unit SOP.
- (8) Initiating emergency medical tags for those patients not previously tagged.
- (9) Verifying information contained on all emergency medical tags of patients evacuated to the battle group aid station.

c. After patients have been treated, those requiring further evacuation and treatment are moved from the battle group aid station(s) by evacuation elements of division or field army medical units.

CHAPTER 6

PERSONNEL SECTION

93. Organization

The personnel section consists of a warrant officer (personnel officer), the personnel sergeant, three personnel administrative specialists, a personnel management specialist, and six personnel administrative clerks.

94. Duties of Personnel Section

This section maintains the company and battle group records, reports, rosters, returns, files, and correspondence prescribed by AR 345-5. Normally the section is separated from the battle group headquarters and may be located at the rear echelon of division headquarters or in the battle group field train bivouac. For duties of the personnel officer, see FM 7-40.

APPENDIX

REFERENCES

AR 320-5	Dictionary of United States Army Terms.
AR 320-50	Authorized Abbreviations and Brevity Codes
AR 345-5	Personnel Management; Personnel Records.
AR 380-5	Safeguarding Defense Information.
AR 711-16	Installation Stock Control and Supply Procedures.
AR 735-10	Accounting for Lost, Damaged and Destroyed Property.
AR 735-35	Supply Procedures for TOE Units, Organizations, and Non-TOE Activities.
AR 750-1	Concept of Maintenance.
AR 750-5	Maintenance Responsibilities and Shop Operation.
AR 750-15	Maintenance Readiness and Field Maintenance Costs (Reports Control Symbol CSGLD-931), Maintenance Readiness of Representative Critical Equipment (Reports Control Symbol CSGLD-932).
FM 1-100	Army Aviation.
FM 3-5	Tactics and Techniques of CBR Warfare.
FM 5-6	Operations of Engineer Troop Units.
FM 5-15	Field Fortifications.
FM 5-20	Camouflage; Basic Principles and Field Camouflage.
FM 5-21	Camouflage of Fixed Installations
FM 5-22	Camouflage Materials.
FM 5-23	Field Decoy Installations.
FM 5-25	Explosives and Demolitions.
FM 5-30	Engineer Intelligence.
FM 5-31	Use and Installation of Boobytraps.
FM 5-34	Engineer Field Data.
FM 5-36	Route Reconnaissance and Classification.
FM 7-10	Rifle Company, Infantry and Airborne Division Battle Groups.
FM 7-()	Combat Support Company, Infantry Division Battle Group.
FM 7-40	Infantry and Airborne Division Battle Groups.
FM 7-100	Infantry Division.
FM 11-10	The Signal Battalion, Infantry Division.
FM 17-35	Armored Cavalry Units; Armored and Infantry Divisions.
FM 20-32	Land Mine Warfare.
FM 21-5	Military Training.

FM 21-6	Techniques of Military Instruction.
FM 21-10	Military Sanitation.
FM 21-30	Military Symbols.
FM 21-40	Small Unit Procedures in Atomic, Biological, and Chemical Warfare.
FM 57-30	Airborne Operations.
FM 57-35	Army Transport Aviation, Combat Operations.
FM 101-10	Staff Officers' Field Manual: Organization, Technical, and Logistical Data.
TM 3-220	Decontamination.
TM 3-366	Flamethrower and Fire Bomb Fuels.
TM 3-376	M2A1 Portable Flamethrower.
TM 5-251	Army Airfields and Heliports.
TM 5-260	Principles of Bridging.
TM 5-505	Maintenance of Engineer Equipment.
TM 5-725	Rigging.
TM 9-2810	Tactical Motor Vehicle Preventive Maintenance, Supply, Inspection, and Training Procedures.
TM 10-405	Army Mess Operations.
DA TB ENG 117	Field Fortifications.
DA Pam 108-1	Index of Army Motion Pictures, Filmstrips, Slides and Phonorecordings.
DA Pam 310-Series	Military Publications Indexes (as applicable).
DA Pam 750-1	Preventive Maintenance Guide for Commanders.

INDEX

	Paragraphs	Page
Aerial resupply.....	63	50
Aid stations, BG.....	92	66
Airmobile operations.....	50	38
Alternate command posts.....	35	26
Approach march.....	42	31
Armorer.....	5	2
Assembly area.....	42	31
Available supply rate.....	56	42
Basic load, definition.....	56	42
Battle group trains:		
Activities.....	61	47
Characteristics.....	60	46
Composition.....	58	46
Classes of supply.....	56	42
Combat trains.....	57-65	45
Command posts:		
Defense and security.....	39	30
Displacement.....	41	30
Interior arrangement.....	37	28
Location.....	35	26
Marking.....	36	28
Personnel.....	38	29
Requirements.....	35	26
Time of opening.....	36	28
Communication chief.....	15	8
Communication, means.....	21-26	14
Messenger.....	24	18
Radio.....	23	17
Sound.....	26	21
Visual.....	25	20
Wire.....	22	14
Communication orders.....	31	23
Communication platoon:		
Defense.....	45	35
Duties of personnel.....	15	8
In offense.....	43	33
Message center section.....	16	9
Mission and organization.....	14	7
Night attack.....	44	35
Radio and visual section.....	18	11
Support for BG.....	13	6
Tactical employment.....	42-50	31
Wire section.....	17	10
Withdrawal.....	46	36
Communication security.....	32	24
Company aidmen, duties.....	90	65
Company commander, duties.....	5	2

	Paragraphs	Page
Company headquarters:		
Mission	4	2
Personnel	5	2
Cryptographic security	32	24
Dead, evacuation	76	59
Decontamination	78	59
Delaying action	47	37
Displacement	41	30
Division CG/comd net	27	22
Enemy material, how collected	75	58
Engineer platoon:		
Capabilities	80	60
Communication	83	61
Defense	86	63
Duties of personnel	82	60
Employment	84-87	62
Mission	79	60
Organization	81	60
Retrograde	87	63
Equipment, destruction	77	59
Executive officer	5	2
Field trains	57-65	45
First sergeant	5	2
Headquarters section, personnel	6-10	4
Information specialist, duties	9	4
Inspections, definition	70	56
Intelligence sergeant	7	4
Kitchens, control	65	52
Maintenance:		
Inspections	70	56
Organizational	69	56
Principles	67	56
Systems	68	56
Vehicle	71	57
Maintenance warrant officer	54	41
Medical platoon:		
Battle group aid stations	92	66
Communication	89	65
Company aidman, duties	90	65
Evacuation responsibilities	91	66
Organization	88	64
Personnel	88	64
Message center	37	28
Message center section, personnel	16	9
Messengers	42	31
Mess management	65	52
Motor sergeant, duties	54	41
Night withdrawal	46	36
Operation order, paragraph 5	30	23
Operations sergeant	8	4

	Paragraphs	Page
Personnel section:		
Duties of personnel.....	94	68
Organization.....	93	68
Physical security.....	32	24
Platoon headquarters.....	53	40
Platoon leader.....	15	8
Pyrotechnics, when used.....	42	31
Radio and visual section.....	14, 18	7, 11
Radio mechanics, duties.....	15	8
Radio/wire integration.....	27	22
References.....	App.	69
Repair/salvage(definitions).....	72, 73	57, 58
Required supply rate.....	56	42
Retirement.....	48	37
Security.....	39	30
Signal supply.....	19	13
SOI.....	28	22
SOP.....	29	23
SSI.....	28	22
Supply:		
Classes.....	56	42
General procedures.....	55	42
Systems.....	56	42
Supply and maintenance platoon:		
Capabilities.....	52	40
Combat supply operations.....	57-65	45
Decontamination duties.....	78	59
Functions of platoon headquarters.....	64	50
Maintenance functions.....	66-71	55
Mess management.....	65	52
Mission.....	51	40
Organization.....	53	40
Personnel, duties.....	54	41
Supply clerks.....	54	41
Supply procedures, general.....	55	42
Supply sergeant.....	5, 54	2, 41
Supply warrant officer.....	54	41
Tactical movement.....	42	31
Transmission security.....	32	24
Vehicle maintenance.....	71	57
Wire section.....	14, 17	7, 10

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NG: State AG (3); units—same as Active Army except allowance is one copy to each unit.

USAR: Same as Active Army.

For explanation of abbreviations used, see AR 320-50.